

# Bedford Route 101 Corridor Study

Final Report  
July 2002



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## Comment Letters

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## Executive Summary

[Note: This Executive Summary addresses recommendations for the entire Route 101 Corridor from Bedford through Wilton.]



*View of landscaped boulevard in the commercial center.*



*Approaching the Meetinghouse Road intersection.*



*Concept for the Nashua Road overpass*

### 1.1 The Problem

Route 101 gets a little worse every year: congestion, accidents, traffic that should be on the highway is cutting through residential neighborhoods. In Bedford, Route 101 is a barrier that cuts the town in half, separating neighborhoods and dividing the town center. In Amherst, congestion is increasing north and east of the bypass section, making it increasingly difficult to make turns into and out of side streets and driveways. On the bypass, congestion causes the eastbound off-ramp at Route 101A to back up onto the highway. Nine fatal head-on collisions have occurred in the past ten years, almost double the statewide average. In western Milford, there is serious congestion at the traffic signals and in the stretch of highway between the Souhegan River and the railroad tracks. In Wilton, there are safety problems due to poor sight lines and outdated intersection geometry, making access to and from the highway difficult.

As bad as these problems are today, they will get worse if nothing is done. Traffic projections anticipate 35 to 50 percent more traffic in 20 years. The result will be more congestion, with level of service failure on the bypass, in western Milford, and in Amherst north and east of the bypass. This will result in more short-cutting through residential areas, more accidents, and a continuing barrier dividing the towns, particularly in Bedford where the highway passes through the town center. It will be more difficult and hazardous to enter and leave side streets and businesses. Commercial development with direct highway access will continue to occur, particularly in Bedford and Wilton, potentially changing the character of the highway.

### 1.2 The Strategy

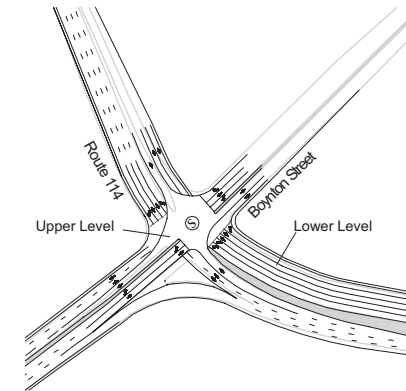
The Route 101 Corridor Plan is a strategy to reduce problems and realize benefits. It has several key parts:

- Access to the highway must be managed for safety.
- Intersections and then roadway segments must be improved to make them safer, accommodate traffic and reduce traffic diverting through residential neighborhoods. Ultimately, Route 101 should have four travel lanes (two in each direction) from Route 114 in Bedford to western Milford, with a low-vegetated median (not a barrier) to control left turns. In Wilton, improvements to shoulders and intersections may be sufficient to make the two-lane section adequate for the 20-year horizon of the Plan.
- In Bedford, the Joppa Hill/Stowell Road and Hardy/Jenkins Road intersections should be im-

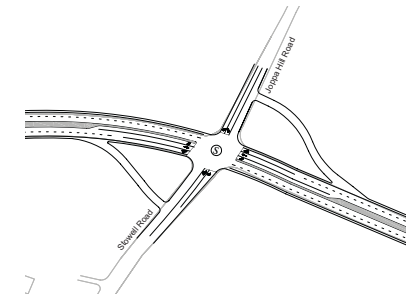
proved and signalized, and the Meetinghouse Road, Constitution Drive intersections should be improved, greatly reducing congestion. In the longer term, the Route 114/101 intersection should be totally reconstructed.

- An overpass for local traffic, pedestrians and bicycles at Nashua Road should be provided, reconnecting the north and south halves of Bedford's Town Center. The connector road from Nashua to Wallace Road which was proposed at the May 2002 public meeting should be relocated behind Route 101 businesses.
- A boulevard cross-section with a landscaped median, tree-lined roadway, and development guidelines for Bedford's commercial center would make the center a better place to do business and shop. The improvements would also signal drivers to slow down.
- In Amherst, local overpasses at Horace Greeley Road and Walnut Hill Road would provide connections between neighborhoods and permit traffic to reverse direction, access businesses, and make right turns to enter and leave side streets and driveways instead of left turns.
- When the bypass is widened to four lanes with a low-vegetated median, interchanges should be improved. A flyover ramp from Route 101A to westbound Route 101 would relieve congestion and encourage drivers to use Route 101 instead of passing through Milford's local streets. Ramp improvements at NH Route 101A and NH Route 13 would provide better acceleration distances and relieve off-ramp backups onto the highway.
- In western Milford, the bypass should be extended approximately half a mile, rejoining the existing highway west of the Wilton Road intersection. This would relieve the congested intersections and the bottleneck between the river and the railroad. Access would be improved for existing commercial and industrial uses and new development on the BROX site.
- In Wilton, intersections at Abbott Hill Acres and Intervale Road should be improved, left turn lanes provided, and a traffic signal added at Greenville Road (NH Route 31 south).
- Roadway improvements should be well-landscaped and guidelines for commercial development should be implemented to improve aesthetics and manage access in Bedford and Wilton. Design guidelines for the BROX property should be implemented to ensure a quality development for the benefit of the Town of Milford.
- Hazardous left turns must be reduced, and turning traffic should be directed to appropriately designed intersections to enter and leave the highway safely; there will be some inconvenience but the people affected will directly benefit from increased safety. Provisions must also be made for left turns into business entrances.

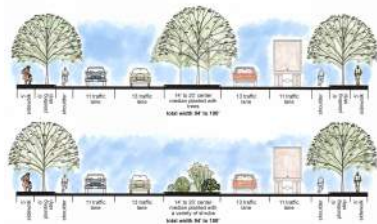
Because the highway will operate better with these improvements than at present, traffic diverting to neighborhood streets will be substantially reduced in Bedford's historic town center, Meeting-



*The proposed reconstruction of Route 101/114 as a two level intersection will benefit people in all four corridor towns.*



*The proposed reconstruction of the Route 101/Joppa Hill Road intersection provides safer access to and from Joppa Hill Road and provides a safe method from vehicles to reverse direction on Route 101 with jug-handle lanes.*



*The improved cross-section on Route 101 will provide safe separation of travel lanes, sidewalks, and capacity for future traffic volumes.*



*Intersection at Wallace Road and Route 101*

house Road, and the neighborhood south of Donald Street. Short-cutting in Amherst and Milford will be similarly relieved by improvements to the bypass and its interchanges with Route 101A and Route 13.

Some property would need to be acquired by NHDOT at some locations in Bedford and Milford, but in general the highway right-of-way is adequate. Few or no buildings would be needed to be relocated or removed in Bedford. Property would need to be acquired at the Black Forest Bakery/Café in Amherst, the development site next to Route 101A interchange in Milford, and for the bypass extension in western Milford. The most significant impact would be at the Meadowbrook Industrial Park, where the full or partial taking of one building would be necessary. Property owners would be fairly compensated for takings or easements. Some wetland impacts would occur in Bedford and Amherst, but they would be limited in extent and can be minimized through design; wetland permits are part of the design process. These issues will be addressed during engineering design, which includes assessment of environmental impacts and a public process.

The Corridor Plan will result in a safer, better operating, and better looking Route 101, a stronger town center, reduced traffic diversion to local streets, facilities for pedestrians and bicycles, and the capability to better control and guide commercial development.

### **1.3 The Result**

- A safer roadway with less congestion.
- Less diversion of traffic into residential areas.
- A better commercial center in Bedford encouraging lower vehicular speeds and accommodating pedestrians, and better conditions for development in western Milford and Wilton.
- An attractive highway corridor through all four towns, preserving existing character.

### **1.4 Next Steps**

The Route 101 Corridor Plan is a first step toward action. The second step is detailed engineering of each project. The Corridor Plan summarizes what the improvements are expected to look like, their size, and their level of impact. Detailed analysis of wetland impacts and property requirements will be part of preliminary engineering, and there will be a public process for each project to review the

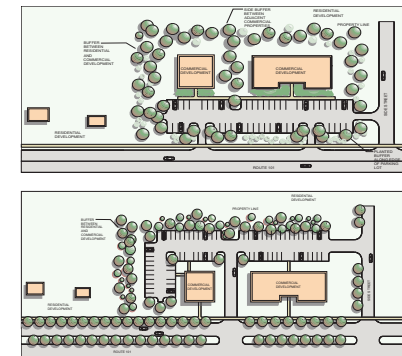
design and suggest improvements. Locations of left turns will be determined through this process.

The recommended improvements would cost \$43 to \$48 million in Bedford over 10 or more years. The total cost would be \$52 to \$53 million in Amherst through Wilton, nearly half of it for widening and extending the bypass and making it safer. These projects are all eligible for federal funding at an 80% level. Route 101 is a regional facility, and all the recommended actions in the Corridor Plan are part of a coordinated strategy to improve safety and traffic operations; therefore, the remaining 20% of project costs should be borne by the state with little or no contribution by the towns.

The Bedford Town Council voted to approve the Bedford Route 101 Corridor Plan on August 14, 2002; next, the Southern New Hampshire Planning Commission must approve it. The Corridor Plan for Amherst, Milford, and Wilton has been reviewed by town officials and the four-town Steering Committee, where it was coordinated with the Bedford portion of the Plan. The recommended improvements will be incorporated into the regional Long Range Transportation Plan by the Nashua Regional Planning Commission. All actions in the Corridor plan for the four towns must win the approval of New Hampshire DOT to be included in the next revision of the state Long Range Transportation Plan. Coordination with DOT has been ongoing throughout the study.

Adopting design guidelines is a town action that can be undertaken over the next year or two, following technical drafting, study by the planning boards, and public hearing.

The following table shows the implementation sequence for the Route 101 Corridor projects.



*Illustration of siting and landscape guidelines for commercial uses in Bedford Center along Route 101*

## Combined Phasing of Route 101 Corridor Improvements

Phasing of Amherst-Milford-Wilton Improvements	Cost (\$million)	Phasing of Bedford Improvements	Cost (\$million)
<b>Immediate Action (this year)</b>			
Safety warnings for the Milford bypass using variable and fixed message signs.			
<b>Urgent Actions (within 3 years)</b>			
Overlay of Milford bypass from western end to Route 101A and painted 4-foot median to increase safety margin.	\$0.4 to \$0.6 mil	Improvement of the Hardy/Jenkins intersection with a traffic signal and left turn lanes	\$2 million
		Elimination of the 101/114 bottleneck by extending the merge past Old Bedford Road.	\$0.5 million
<b>Short-Term Actions (within 3 to 5 years)</b>			
Geometric and sight-line improvements in Wilton	\$1 million	Nashua-Bell Hill overpass for local traffic and connector road from Nashua Road to Wallace Road.	\$4.5 million
		Center left turn lanes at Kahliko Lane, Gage Girls Road to Elk Drive, and Twin Brook Lane.	\$1 million
<b>Medium Term Actions (within 5 to 10 years)</b>			
Widening of Bypass to 4 lanes with median from western end through 101A interchange (includes Rte 13 and Rte 101A interchange improvements, flyover ramp, and gateway landscaping)	\$21.2 million	Improvement of Meetinghouse Road intersection (5-lane cross-section)	\$2 million
Bypass extension in western Milford (includes gateway landscaping)	\$5.2 million	Widening of Route 101 to 4 lanes with median divider from Route 114 to Meetinghouse Road	\$3 million
Local service overpass at Horace Greeley Road (installation of median can be added prior to full 4-lane section if coordinated with Joppa Hill Rd improvements in Bedford)	\$2 million	Creation of 4-lane boulevard from Meetinghouse Road to Wallace Road with landscaped median providing places for left turns.	\$3 million
Local service overpass at Walnut Hill Road, allowing traffic to reverse direction	\$2 million		
<b>Long Term Actions (within 10 to 15 years)</b>			
Widening of Bypass to 4 lanes with median from 101A interchange through Amherst Street interchange (includes gateway landscaping)	\$6 million	Widening of Route 101 to 4 lanes with median divider from Wallace Road to Hardy/Jenkins Road.	\$4 million
Widening of Route 101 to 4 lanes with median from 101A interchange through Walnut Hill Road, with local service road connection from overpass to Amherst St via Limbo Lane	\$7.6 million	Improvement of Joppa Hill/Stowell Road intersection with traffic signal and jug-handle turn-around connections.	\$2.5 million
Widening to 4 lanes with median from Walnut Hill Road to Bedford Town Line. (must be phased with or after Joppa hill intersection improvement in Bedford)	\$3.6 million	Widening of Route 101 to 4 lanes with median divider from Hardy/Jenkins to Amherst Town Line	\$6 million
Improvement of shoulders in Wilton and Greenville Road intersection improvement (includes gateway landscaping)	\$3.5 million	Reconstruct Route 114/101 intersection as two-level signalized intersection.	\$15-20 million

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## 2.0 Introduction

### 2.1 Bedford and Route 101

Route 101 is a major east-west highway in southern New Hampshire, second only to Route 9 as an east-west arterial west of Interstate Route 93. It has long passed through Bedford on the current alignment, except for the improvement in the 1950s which moved the road from the historic town center to the present alignment just to its south.

As Bedford and southern New Hampshire grew dramatically in the 1980s and 1990s, traffic also increased, both from local and regional users of the highway. In addition, subdivisions and commercial development over the past half-century have added many points of access to the highway, necessitating left turns into and out of the traffic stream. As traffic increased, congestion became common during peak periods, and traffic began to divert to neighborhood streets until, at present, volumes passing through the narrow streets of the historic town center are almost half the volume on the highway itself. In addition, the high traffic volumes at all hours have created a barrier effect dividing the town in half and isolating town center uses from one another.

In the 2000 update to Bedford's Master Plan, Route 101 was a major topic, both in terms of transportation and the roadway's effect on the quality of life in Bedford. The need for action to reduce congestion, improve safety, and strengthen the town center was clearly identified. In 2000, the town applied for and received a study grant from the Federal Highway Administration's Transportation and Community and System Preservation (TCSP) program, whose aim is to consider both transportation and land use in a solution to roadway problems which also improves the quality of life in the town. The Corridor Study is the result.

### 2.2 Study Process

#### 2.2.1 Coordination with NRPC Corridor Study

The Bedford Route 101 Corridor Study is being closely coordinated with a parallel study of the Route 101 Corridor in Amherst, Milford, and Wilton under a separate contract managed by the Nashua Regional Planning Commission (NRPC). Because of the importance of maintaining conti-



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nuity and consistency over this entire stretch of roadway, a Corridor Steering Committee has been meeting regularly to coordinate the studies. The committee consists of representatives from the four towns (including Bedford's Town Manager, Planning Director and two Town Council members) as well as NRPC. The Bedford study is several months ahead of the schedule for the NRPC study, but issues such as roadway cross-section in Bedford and Amherst are being successfully discussed as the Bedford study nears completion.

#### ***2.2.2 Public Meetings***

The Bedford Route 101 Corridor Study has emphasized public involvement and two-way information flow since its inception in May 2001. There have been four public meetings and workshops, all of them well-attended.

- Kick-off meeting, May 22, 2001 at the Bedford Library
- Visioning Workshop, September 19, 2001 at the historic Town Hall
- Consensus-building Workshop, November 29, 2001 at McKelvie School
- Public presentation of draft recommendations, May 23, 2002 at McKelvie School

#### ***2.2.3 Public Information***

In addition to the public meeting presentations, a project web site has been updated throughout the study. The site, which is linked to the Town of Bedford's web page, contains notes of all meetings as well as graphics and studies. It also provided announcements of all upcoming meetings.

Prior to the final public meeting, a 4-page color summary was produced and distributed to all households in town as an insert to the Bedford Journal. The intent of this summary was to bring all citizens of Bedford up to date on the work done during the study.

#### ***2.2.4 Advisory Committee Meetings***

The Bedford Route 101 Corridor Study Advisory Committee has 34 members appointed by the Town Council and charged with participating and advising the Council during the course of the

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study. Fourteen of the members represent specific neighborhoods and the other members represent various town boards and departments. (A membership list is included in the Appendix to this report.)

The Committee met with the consultants nine times from June 2001 through May 2002. Meetings were conducted informally with the aim of moving toward consensus on the topics being presented by the consultants and discussed by the members. Meetings were open to the public and a number of Bedford residents not on the committee attended each meeting.

In addition to the meetings, several Committee members participated in a community photo survey in which they were given disposable cameras and logged photographs of situations in Bedford and examples in other places that they deemed either assets or liabilities. The mounted photos were displayed in the Town Offices during September 2001 and were used by the consultants as part of the analysis of issues and opportunities in the corridor.

The Committee members will receive copies of this draft report for their review and comment to the Town Council.

### **2.2.5 Schedule**

The Route 101 Corridor Study began in May 2001 and will conclude in July 2002. The first phase of work included inventory and analysis of traffic and roadway issues, corridor aesthetics, and town center urban design. This phase culminated in the September 2001 Visioning Workshop. The second study phase involved development of options for roadway improvements, accommodation of pedestrians/bicycles, and guidelines for landscaping and architectural design. A list of roadway options was developed and evaluated early in this phase; the options on the list were discussed with the Advisory Committee at meetings in Fall 2001 and Winter/Spring 2002. The Consensus-Building workshop in November 2001 provided broad-based feedback on the options and preliminary recommendations for roadway improvements and landscaping. After the workshop, the consultants worked with the Committee to develop specific recommendations, which were presented and received feedback at the final public meeting. Recommendations were revised in some cases after the



*Traffic at Wallace Road signal  
(photo by Jayne Spaulding)*

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public meeting and are presented in this report. Following Committee review, the recommendations will be considered by the Town Council in July 2002.

### **2.3 Report Overview**

This report begins with an analysis of the pieces of the puzzle: traffic and safety, land use and economics, aesthetics and town center urban design. This information provides the basis for identifying issues and opportunities that should be addressed.

The second section of the report begins with a Vision Statement summarizing public input on what participants in the process would like to see happen in the Route 101 Corridor. This section goes on to identify and evaluate concepts for improving Route 101. The final part of the report presents an organized program of recommendations for both roadway improvements, as well as pedestrian and bicycle routes and guidelines to address landscaping and architectural design of commercial development in the corridor.

## 3.0 Inventory and Analysis

### 3.1 Traffic

This section describes and summarizes the existing traffic data collection inventory, which includes existing traffic volume counts and traffic flow trends, vehicle speed measurements, and vehicular accident data. In addition, this section presents the future year traffic volume projections and the results of an operational analysis conducted for both the existing and future conditions.

#### 3.1.1 Existing Traffic Volumes

To determine the existing traffic volume demands and flow patterns along the corridor, an extensive traffic volume count program was conducted during the month of July 2001. Weekday morning (7:00 – 9:00 AM) and weekday evening (4:00 – 6:00 PM) peak period manual turning movement counts were conducted at eight intersections along the corridor. The peak period traffic volume counts were conducted at the following intersections with Route 101.

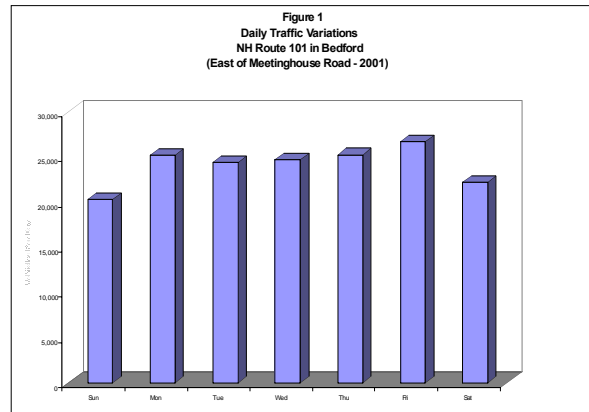
- Joppa Hill Road/Stowell Road
- Freedom Way/Gage Girls Way
- Hardy Road/Jenkins Road
- Wallace Road
- Bell Hill Road/Nashua Road
- Meetinghouse Road
- Old Bedford Road/Constitution Drive
- Route 114/Boynton Road

In addition to these Route 101 corridor intersections, weekday morning and evening peak period traffic volume counts were conducted within the town center. The purpose of these counts was to identify and evaluate the level of existing cut-through activity where motorists use North Amherst Street and Bedford Center Road to avoid the congestion on Route 101. These additional counts were conducted at the following intersections:

- North Amherst Street/Bedford Center Road

Table 1: Existing Traffic Volume Summary (2001)

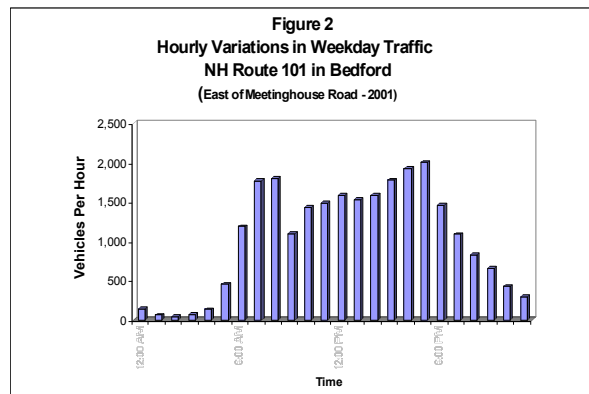
	Average Weekday Traffic Volume (vpd)	AM Peak Hour (vph)	Percent of Daily Traffic	PM Peak Hour (vph)	Percent of Daily Traffic	Average Saturday Traffic Volume (vpd)	Peak Hour (vph)	Percent of Daily Traffic
West of Joppa Hill Rd	22,400	1,590	7.1	1,920	8.6	20,400	1,540	7.5
East of Meetinghouse Rd	24,800	1,800	7.3	2,000	8.1	22,200	1,630	7.3
East of NH 114	47,050	3,460	7.4	3,660	7.8	39,850	2,900	7.3



- Bedford Center Road/Church Street
- North Amherst Street/Bell Hill Road
- Bedford Center Road/Minsterial Road
- Bedford Center Road/Meetinghouse Road

To supplement the intersection turning movement counts, 24-hour automatic traffic recorder counts were conducted at key locations along the corridor. A summary of the automatic traffic recorder count data is presented in Table 1.

As shown in the table, the 2001 Average Weekday Traffic (AWDT) along Route 101 ranges from approximately 22,400 vehicles per day (vpd) west of Joppa Hill Road to 24,800 vehicles per day east of Meetinghouse Road. Peak hour traffic volumes range from approximately 7.1 to 8.6 percent of the AWDT. Directional flow is predominately eastbound (56 percent) in the AM peak hour and westbound (54 percent) in the PM peak hour.



#### Daily Traffic Variations

Examination of the daily traffic volume variations along Route 101 (east of Meetinghouse Road) during the month of April 2001 revealed little variation during the weekdays with the weekday volumes ranging from approximately 24,400 vpd to 26,700 vpd with the low volume recorded on a Tuesday and the high volume recorded on a Friday. Weekend traffic was somewhat lower at approximately 20,400 vpd on Sunday and 22,200 vpd on Saturday. The daily variations are depicted in Figure 1.

#### Hourly Traffic Variations

A comparison of the hourly variations for a typical weekday and a Saturday, as expected, reveal markedly different trends. Route 101 exhibits typical commuter route characteristics with well defined morning and evening commuter peak periods. The AM commuter period is over by 9:00 AM. However, by 10:00 AM the volume of traffic picks up again and increases steadily throughout the midday and early afternoon where it reaches its high for the day during the PM commuter period.

By comparison, on a Saturday the volume of traffic remains relatively high and constant from 10:00 AM to 6:00 PM. The hourly variations for the weekday and Saturday are depicted in Figures 2 and 3.

### Monthly Traffic Variations

An examination of historical traffic volume data collected by the New Hampshire Department of Transportation (NHDOT) at its permanent traffic recorder station located along Route 101 in Amherst provides monthly traffic volume variations for a weekday and a Saturday. The data show that for a weekday, the highest daily volumes occur during the summer months of June, July, and August. The lowest daily volumes were recorded during the months of January and February. Interestingly, the highest volume month when only considering Saturday traffic is October. The monthly variations for the weekday and Saturday are depicted in Figures 4 and 5.

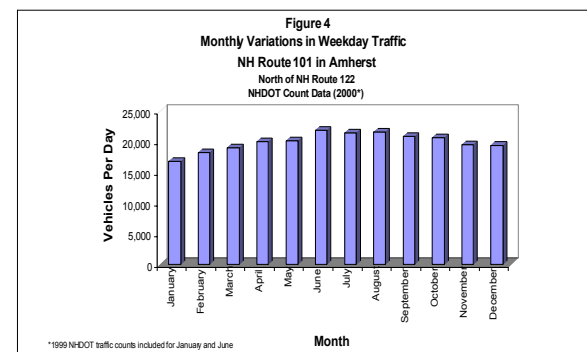
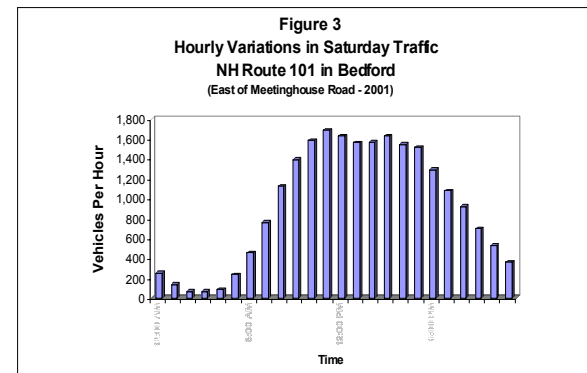
To evaluate traffic operations along the existing corridor, the weekday AM and PM peak hour intersection counts, which were conducted in July one of the highest volume months of the year were used. The 2001 weekday AM and PM peak hour traffic volume network is presented in Figure 6.

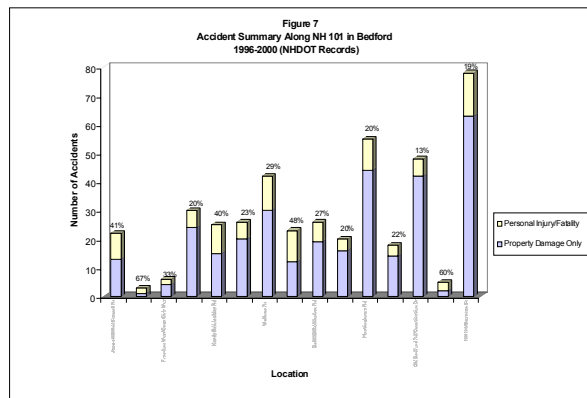
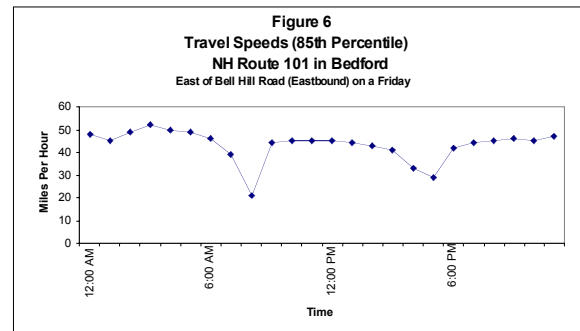
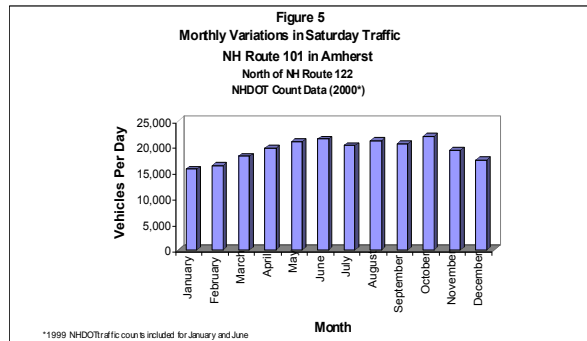
#### 3.1.2 Travel Speeds

Speed measurements were recorded along Route 101 east of Bell Hill Road. A graph depicting the 85<sup>th</sup> percentile speeds in the eastbound direction over a 24-hour period is shown in Figure 6. The 85<sup>th</sup> percentile speed is the travel speed at which 85 percent of vehicles are traveling at or below. As shown in the graph the 85<sup>th</sup> percentile speeds generally range from 45 mph to 50 mph, although substantial drops in travel speed were recorded during the peak hours of the day. This is due to the congestion that occurs at the signalized intersection with Meetinghouse Road.

#### 3.1.3 Accidents

Accident records provided by the New Hampshire Department of Transportation were reviewed and evaluated. During the five-year period of 1996 to 2000 a total of 429 accidents were reported along





the Route 101 study corridor in Bedford. The location with the highest number of accidents (78 accidents) is the Route 114/Boynton Road intersection. Other high accident locations include the Meetinghouse Road intersection (56 accidents), the Old Bedford Road/Constitution Drive intersection (48 accidents) and the Wallace Road intersection (42 accidents). Although these signalized intersections recorded the highest number of accidents, the percentage of accidents involving personal injuries at these locations was relatively low. However, some of the unsignalized locations at the western end of the corridor such as Joppa Hill Road to and including Gage Girls Road, the Hardy Road/Jenkins Road intersection, and the segment of corridor between Wallace Road and Nashua Road reported a high percentage of severe accidents. The percentage of accidents at these locations that involved a personal injury or fatality exceeded 40 percent. The accident data are summarized graphically in Figure 7.

### 3.1.4 Future Traffic Volumes

To evaluate the impact of future travel demands along the study corridor, the 2001 base year traffic volumes were projected to a 20-year design horizon. The 20-year time frame is generally used for the purpose of long-range transportation planning. To estimate future traffic volume growth it is important to consider such factors as historical growth trends, future corridor land use, as well as planned transportation improvements in the area. A review of historical growth patterns along Route 101 over the past 20 years revealed growth rates as high as 4 percent per year. However, much of that growth occurred in the mid-1980's with the rate of increase slowing considerably through the 1990's. The growth rate over the next twenty years is expected to be much more modest.

The Southern New Hampshire Planning Commission (SNHPC) and the Nashua Regional Planning Commission (NRPC) have developed separate traffic volume models that include the Route 101 corridor. The SNHPC model covers Route 101 in Bedford while the NRPC model covers Route 101 in the neighboring towns of Amherst, Milford, and Wilton. A review of both traffic models suggest an expected growth rate for this section of the corridor of 1.7 percent per year, which is an increase in traffic volume of approximately 40 percent over the next 20 years.

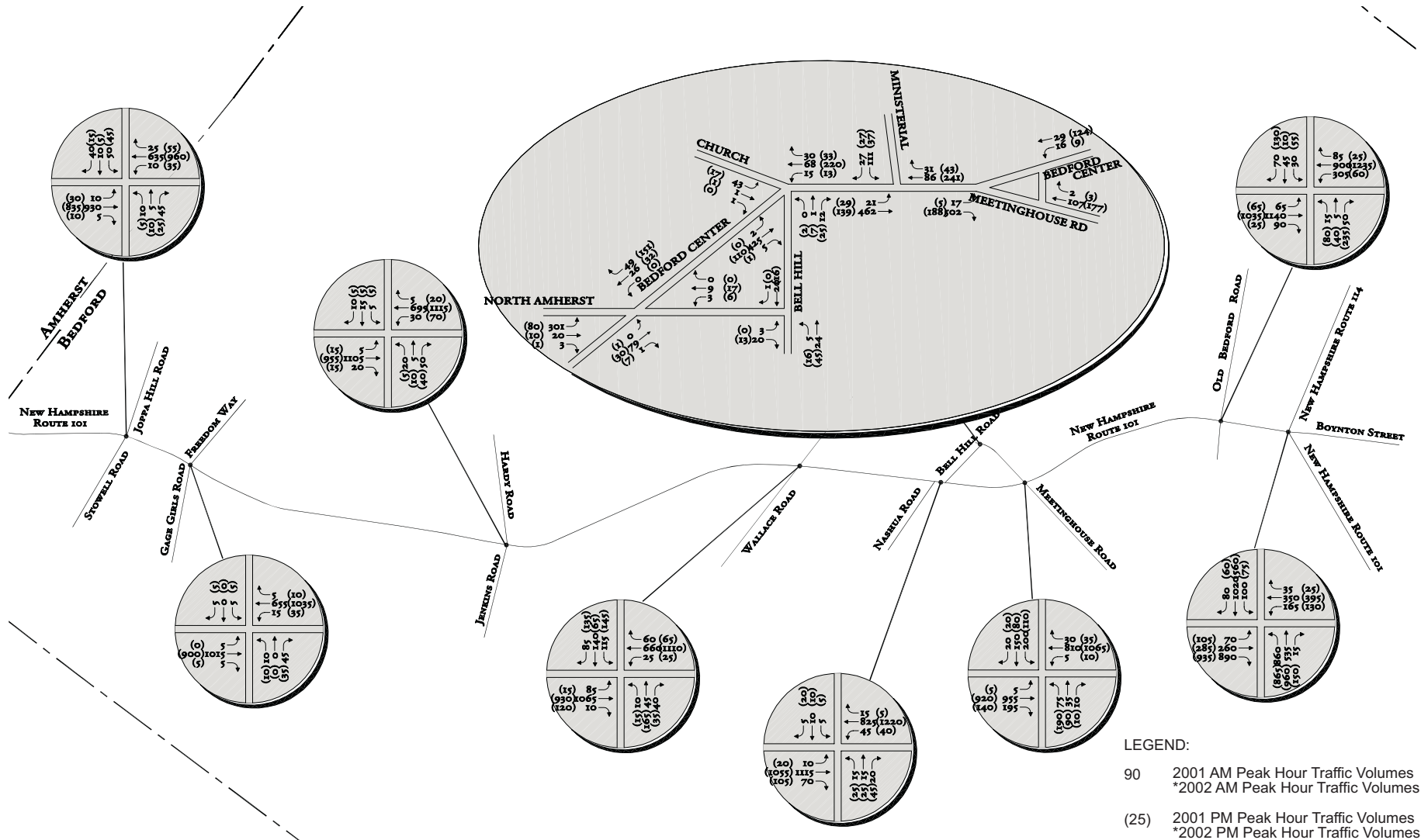


Figure  
Existing Traffic Volumes

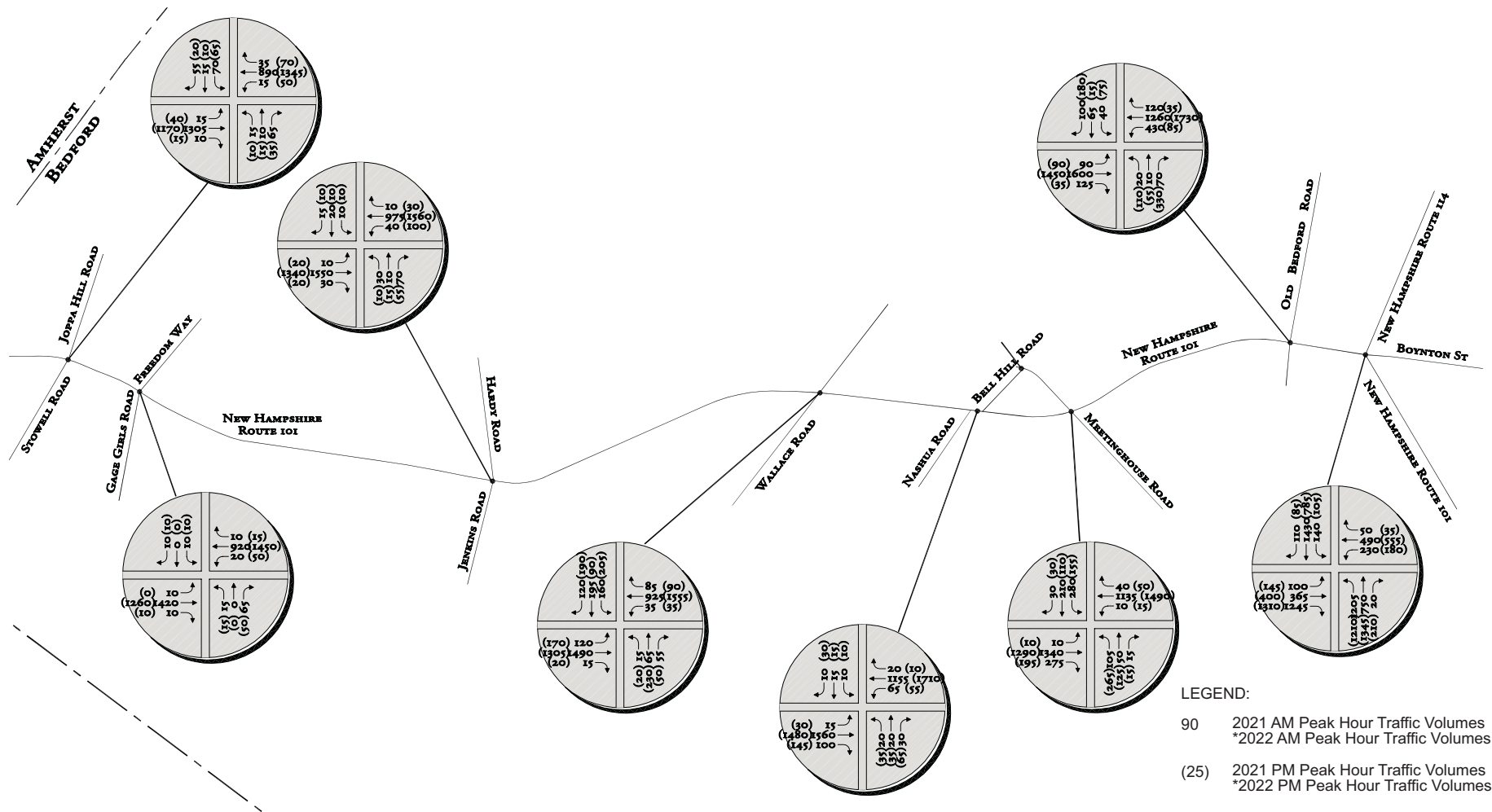


Figure  
Future Traffic Volumes

Existing (2001-2002) weekday peak hour traffic volumes are shown in Figure 8. These can be compared to the projected 2021 weekday AM and PM peak hour traffic volumes shown in Figure 9.

### 3.1.5 Level of Service Analysis

Measuring existing traffic volumes and projecting future traffic volumes provides some indication of the importance of Route 101 to the regional roadway system, but gives little indication of the quality of traffic flow. To measure the quality of traffic flow, key intersections and roadway segments were analyzed from an operational perspective. The results of the analysis provide an indication of how well the roadway system serves the travel demand that is placed upon it.

Level of Service (LOS) is a term used to denote the different operating conditions that occur on a given roadway under various traffic volume loads. LOS is a qualitative measure of the effect of a number of factors including roadway geometrics, travel speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or intersection. The traffic performance measures and evaluation criteria used in the operational analyses are based on the methodology presented in the 2000 Highway Capacity Manual.<sup>1</sup>

Six levels of service are defined ranging from LOS A to LOS F, with LOS A representing the best operating condition and LOS F representing the worst. LOS C describes a stable flow condition and is generally considered desirable for peak or design hour traffic flow. LOS D is generally considered acceptable where the cost and impacts of making improvements to provide LOS C are deemed unjustifiable. Level of Service E is capacity.

The results of the operational analyses show that the left-turn exiting movements from each of the unsignalized intersections operate at failure (LOS F) under the 2001 AM and PM peak hour conditions. Of the four signalized intersections, only Wallace Road operates at an acceptable level of service (LOS C). The Meetinghouse Road intersection operates at capacity (LOS F) with long delays during both the AM and PM peak hours. The Old Bedford Road/Constitution Drive intersection operates at LOS C during the AM peak hour and LOS F during the PM peak hour. The Route 114/

**Table 2**  
Unsignalized Intersection Analysis  
2001 Existing Conditions

Intersection with		AM PEAK HOUR			PM PEAK HOUR		
		Approach Demand (vehicles/hr)	Delay <sup>+</sup>	LOS <sup>A</sup>	Approach Demand (vehicles/hr)	Delay	LOS
Route 101 Joppa Hill Road/Stowell Road	EB Left	10	9	A	30	11	B
	WB Left	10	11	B	35	10	B
	NB Left/Thru	15	93	F	15	207	F
	NB Right	45	20	C	25	18	C
	SB Left/Thru	60	386	F	50	-	F
	SB Right	40	14	B	15	19	C
Freedom Way/Gage Girls Way	EB Left	5	9	A	0	11	B
	WB Left	15	11	B	5	10	B
	NB Lanes	55	54	F	45	94	F
	SB Lanes	10	87	F	10	117	F
Hardy Road/Jenkins Road	EB Left	5	10	A	15	11	B
	WB Left	30	12	B	70	11	B
	NB Lanes	75	321	F	55	185	F
	SB Lanes	30	178	F	15	349	F
Bell Hill Road/Nashua Road	EB Left	10	10	A	20	12	B
	WB Left	45	12	B	40	12	B
	NB Lanes	50	853	F	95	-	F
	SB Lanes	20	542	F	35	-	F

<sup>+</sup> Average delay per vehicle in seconds.  
<sup>A</sup> Intersection level of service.

**Table 3**  
Signalized Intersection Analysis  
2001 Existing Conditions

Intersection with	Analysis Period	v/c <sup>+</sup> , Delay <sup>+</sup> , LOS <sup>A</sup>		
		v/c <sup>+</sup>	Delay <sup>+</sup>	LOS <sup>A</sup>
Route 101 Wallace Road	AM	0.71	21	C
	PM	0.72	31	C
Meetinghouse Road <sup>1</sup>	AM	-	-	F
	PM	-	-	F
Old Bedford Road/Constitution Drive	AM	0.84	21	C
	PM	1.11	82	F
Route 114/Boynton Road	AM	0.98	76	E
	PM	0.90	46	D

<sup>+</sup> Volume to capacity ratio.

<sup>+</sup> Average delay per vehicle in seconds.

<sup>A</sup> Intersection level of service.

<sup>1</sup> v/c and Delay at Meetinghouse Road are difficult to predict because demand exceeds capacity by such a substantial degree.

<sup>1</sup> v/c and Delay at Meetinghouse Road are difficult to predict because demand exceeds capacity by such a substantial degree.

2000 Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, D.C.

**Table 4**  
**Unsignalized Intersection Analysis**  
**2021 No Build**

Intersection with Route 101		AM PEAK HOUR			PM PEAK HOUR		
		Approach Demand (vehicles/hr)	Delay <sup>+</sup>	LOS <sup>^</sup>	Approach Demand (vehicles/hr)	Delay	LOS
Joppa Hill Road/Stowell Road	EB Left	15	10	B	40	14	B
	WB Left	15	13	B	50	13	B
	NB Left/Thru	25	-	F	25	-	F
	NB Right	65	47	E	35	30	D
	SB Left/Thru	85	-	F	75	-	F
Freedom Way/Gage Girls Way	SB Right	55	20	C	20	33	D
	EB Left	10	10	B	0	13	B
	WB Left	20	14	B	50	13	B
	NB Lanes	80	-	F	65	-	F
	SB Lanes	20	-	F	20	-	F
Hardy Road/Jenkins Road	EB Left	10	11	B	20	15	B
	WB Left	40	16	C	100	15	C
	NB Lanes	110	-	F	80	-	F
	SB Lanes	45	-	F	30	-	F
Bell Hill Road/Nashua Road	EB Left	15	12	B	30	17	C
	WB Left	65	18	C	55	17	C
	NB Lanes	70	-	F	135	-	F
	SB Lanes	35	-	F	55	-	F

\* Volume to capacity ratio.  
+ Average delay per vehicle in seconds.  
^ Intersection level of service.

Boynton Street intersection, as an isolated intersection, operates at LOS E in the AM and LOS D in the PM. However, note that during the PM peak hour, the Route 101 westbound traffic backs-up from the Old Bedford Road/Constitution Drive intersection into the Route 114/Boynton Street intersection effectively creating a LOS F condition.

Not surprisingly, by the year 2021 traffic operating conditions along the corridor will deteriorate to where each of the signalized intersections would be operating at LOS F, the substantial delay currently experienced by motorists turning left onto the corridor would worsen, and the delays experienced along the corridor segments would be so severe that motorists would seek alternative cut-through routes.

The results of the 2001 and 2021 signalized and unsignalized intersection analyses are summarized in Tables 2, 3, 4 and 5.

**Table 5**  
**Signalized Intersection Analysis**  
**2021 Future Condition (without Improvements)**

Intersection with Route 101	Analysis Period	v/c*	Delay <sup>+</sup>	LOS <sup>^</sup>
Wallace Road	AM	0.99	43	D
	PM	1.06	66	E
Meetinghouse Road	AM	-	-	F
	PM	-	-	F
Old Bedford Road/Constitution Drive	AM	1.28	111	F
	PM	1.66	202	F
Route 114/Boynton Road	AM	1.36	176	F
	PM	1.23	130	F

\* Volume to capacity ratio.  
+ Average delay per vehicle in seconds.  
^ Intersection level of service.

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## 3.2 Land Use

### 3.2.1 History

Images of Bedford in the early 1900's indicate how little the historic center has changed. As most towns urbanized in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, Bedford maintained the character and density of typical rural New England towns before industrialization. After 1850, development in Bedford Town Center all but ceased for the next one hundred years. Then in the years following the Second World War, automobiles, residential and commercial development, and highway construction began to change Bedford.

Unlike today, retail uses were historically part of Bedford Town Center. Access to Manchester was via Bedford Center Road, and retail uses in the center of town benefited from visibility to passersby. Today, access to Manchester has shifted to the Route 101 corridor, and retail has followed the new route bypassing the historic town center.

Today, 13 houses built before 1900 remain on property directly abutting the Route 101 Corridor, and 25 additional houses, the Presbyterian Church, the Town Hall, and two barns are located close to the corridor.



*View of Bell Hill from Presbyterian Church; 1925*



*View of French's General Store in Bedford Town Center*



*View of Train Station near Bell Hill Road; 1903*



View of Bedford Town Center from Bell Hill; 1900



View of Bedford Town Center from Presbyterian Church; 1925

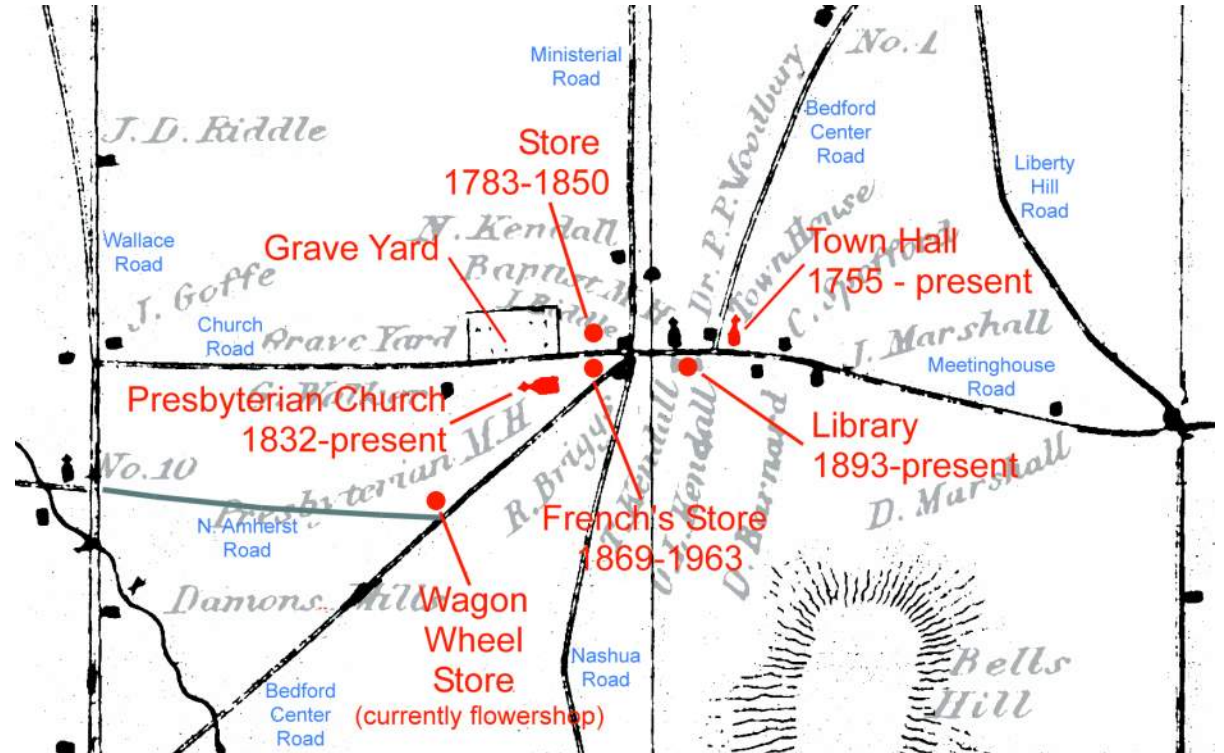


Fig \_\_Close-up of 1850 map with non-residential buildings highlighted



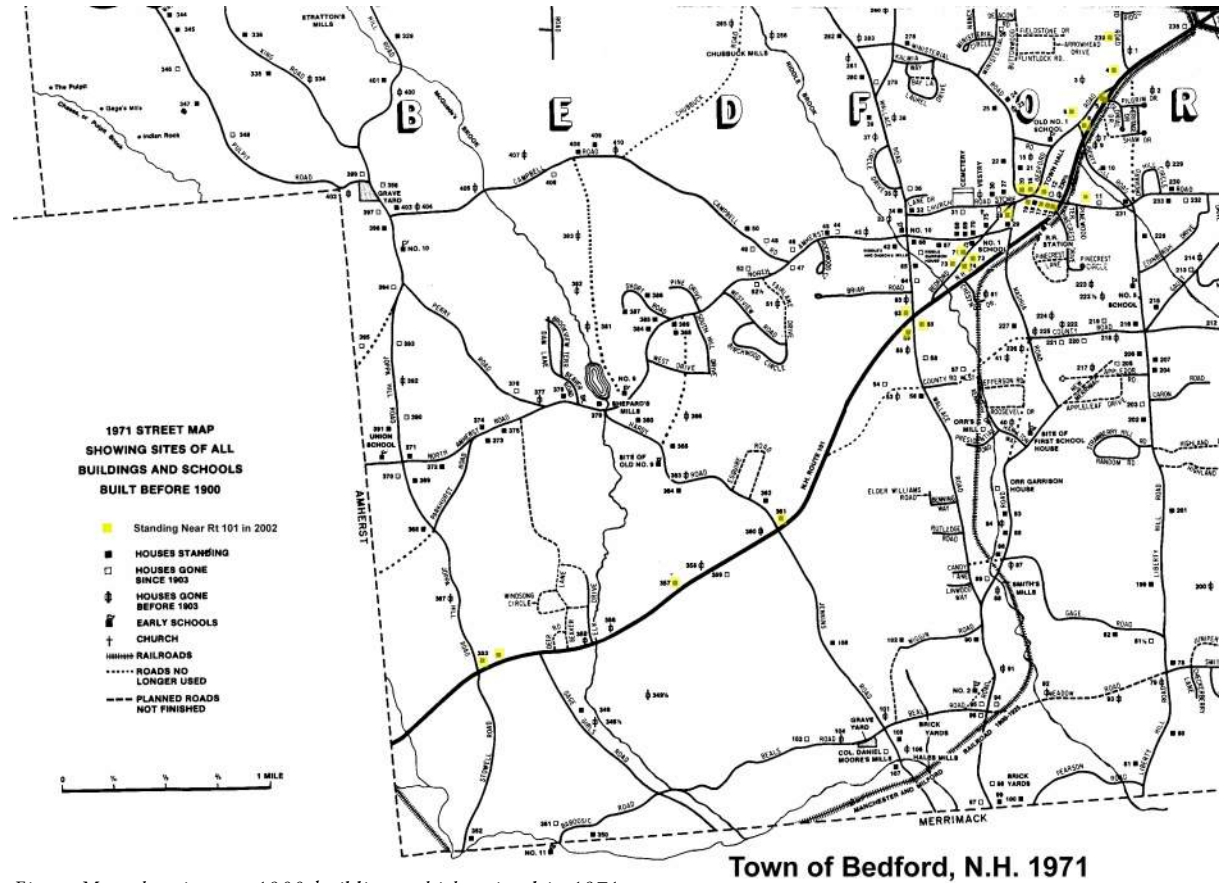


Fig \_\_ Map showing pre-1900 buildings which existed in 1971



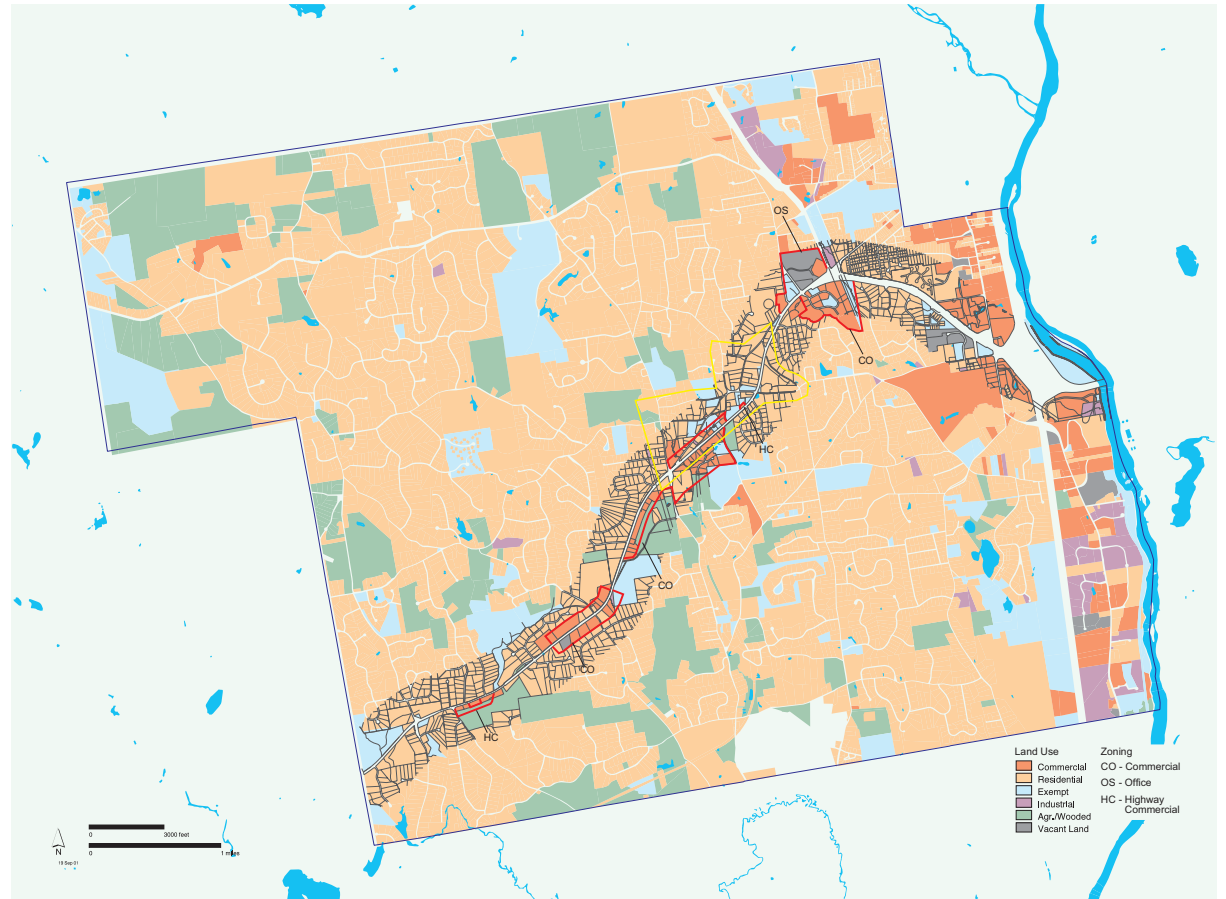


Figure \_\_ Corridor Land Use

### 3.2.2 Land Use Today

Most of the commercial, industrial and retail land uses in Bedford are concentrated along two primary roadways; Route 3 (South River Road) and Route 101. Although there are other small nodes of non-residential development, such as in the Donald Street area, these two corridors represent the town's economic engine in terms of employment and non-residential property tax base.

While these two corridors contain many of the same types of non-residential land uses they also have some distinct differences in terms of their character and functionality within the market area. The Route 101 sub-market area is an amalgamation of commercial retail, service and office uses, that have developed over a period of several decades, in scattered zoning districts along the length of the corridor. These types of development range from suburban office parks to retail strip centers to free-standing establishments. Most of the existing development along the corridor was present prior to 1990 with relatively few new buildings constructed over the past decade.

Total non-residential building space along the Route 101 corridor is approximately 813,000 square feet, as illustrated in Table 1. Approximately 70% ( 580,000 sf) is office space while 30% (233,000 sf) is non-office space (i.e. retail, services, etc.). About 70% of the office stock could be classified as Class A space (higher quality masonry and glass structures) for this market, while 30% is Class B or lower (wood-framed structures and free standing buildings). Based on a field survey of existing office space it is estimated that the vacancy rate is approximately 19%. The majority of the vacancies are in the Class A structures. The predominant use of the corridor's office space is by the FIRE (Finance, Insurance and Real Estate ) and Professional Services sectors along with a small amount of technology oriented users.

The non-office commercial uses along the corridor are, for the most part, a mixture of local goods and services, combined with some specialty retail/wholesale establishments, as well as a number of highway-oriented establishments such as restaurants and gas stations. None of the businesses would be classified as regional facilities, although many of the businesses are certainly supported by a larger customer base than that which exists in Bedford alone. A number of the businesses along the corri-

Table 1  
Comparison of Non-Residential Square Footage and Assessed Value  
in the Route 101 and Route 3 Sub-Market Areas  
Bedford, New Hampshire - 1998

	Building SF	% Total	Assessed Value (in millions)				Assessed Value Per SF
			Buildings*	% Total	Total L & B	% Total	
<b>ROUTE 101</b>							
Commercial Office	580,037	71.3%	\$31.5	72.6%	\$39.1	70.3%	\$54.45
Commercial Non-Office	233,857	28.7%	\$11.9	27.4%	\$16.5	29.7%	\$51.05
TOTAL	813,894	100.0%	\$43.4	100.0%	\$55.6	100.0%	
<b>ROUTE 3 NORTH</b>							
Commercial Office	606,632	40.6%	\$38.6	44.7%	\$49.8	42.7%	\$63.71
Commercial Non-Office	886,086	59.4%	\$47.7	55.3%	\$66.9	57.3%	\$53.91
TOTAL	1,492,718	100.0%	\$86.3	100.0%	\$116.7	100.0%	
<b>ROUTE 3 SOUTH</b>							
Commercial Office	635,579	80.2%	\$34.6	79.5%	\$43.9	76.7%	\$54.44
Commercial Non-Office	157,202	19.8%	\$8.9	20.5%	\$13.3	23.3%	\$57.23
TOTAL	792,781	100.0%	\$43.5	100.0%	\$57.2	100.0%	
<b>ROUTE 3 SOUTH</b>							
Industrial Manufacturing	418,727	70.4%	\$13.5	67.5%	\$17.1	68.1%	\$32.42
Industrial Non-Office	176,177	29.6%	\$6.5	32.5%	\$8.0	31.9%	\$37.09
TOTAL	594,904	100.0%	\$20.0	100.0%	\$25.1	100.0%	

\* Does not include outbuildings or other property improvements  
Source: Assessment records, Town of Bedford, 1998

	Building SF	% Subtotal	% Total	Total Ass'd Value (in millions)	% Subtotal	% Total
<b>OFFICE</b>						
Route 101	580,037	31.8%	15.7%	\$39.1	29.4%	15.4%
Route 3	1,242,211	68.2%	33.6%	\$93.7	70.6%	36.8%
Subtotal	1,822,248	100.0%	49.3%	\$132.8	100.0%	52.2%
<b>NON-OFFICE</b>						
Route 101	233,857	18.3%	6.3%	\$16.5	17.1%	6.5%
Route 3	1,043,288	81.7%	28.2%	\$80.2	82.9%	31.5%
Subtotal	1,277,145	100.0%	34.6%	\$96.7	100.0%	38.0%
<b>INDUSTRIAL</b>						
Route 3	594,904	100.0%	16.1%	\$25.1	100.0%	9.9%
<b>TOTAL</b>	<b>3,694,297</b>	<b>-----</b>	<b>100.0%</b>	<b>\$254.6</b>	<b>-----</b>	<b>100.0%</b>

Source: Assessment records, Town of Bedford, 1998

dor would typically be considered locally oriented in nature despite their highway location. These include a bank, cleaners, hardware store, non-chain grocery store, and pharmacy.

In contrast to Route 101, the Route 3 corridor has substantially more non-residential building space and has been a much more active sub-market within the community, in terms of new construction, over the last decade. Another distinction is that the Route 3 sub-market also contains a significant amount of industrial space, both manufacturing and non-manufacturing in nature.

The analysis of the Route 3 corridor has been further refined into a northern and southern section, with Route 101 as the dividing line. While both sections have an equivalent amount of office space, as shown in Table 2, the northern segment is much more retail oriented while the southern section has a strong industrial component, but much less retail space.

The Route 3 north sub-market contains approximately 606,000 sf of office space (40%) and 886,000 sf of non-office uses (60%). The retail component of this sub-market is not only much larger than the Route 101 sub-market, but is also much more regionally oriented in nature. Due to its location at the intersection of two highways (Route 101 and the Everett Turnpike) this area has attracted a regional shopping center, big box retail stores, super grocery stores, and various national chain retail stores and restaurants. Therefore, while this sub-market does represent competition for the Route 101 retail market, Route 3 is much more of a regional shopping area that attracts customers from the greater Manchester region.

From an assessed value standpoint, Route 101 contains approximately \$31.5 million in office buildings while Route 3 north office space totals \$38.6 million. On a square foot basis, office space on the Route 101 corridor is valued at \$54.45 per square foot and Route 3 office space at \$63.71 per square foot. This is a rather surprising disparity and may be attributable to a higher percentage of Class A space on the Route 3 corridor.

Non-office commercial building space on the Route 101 corridor has an assessed value of approximately \$11.9 million and a square foot value of \$51.05. On the Route 3 corridor, the same class of buildings has a considerably higher total assessed value of approximately \$47.7 million with a

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comparable square foot value of \$53.91.

The other portion of the Route 3 corridor, the Route 3 south sub-market, has a total of approximately 792,000 square feet of commercial building space. As shown in Table 1, about 635,000 sf (80%) of that total is office space with only 157,000 sf (20%) designated as non-office space. The assessed value of office space, the majority of which would be categorized as Class A space, is approximately \$34.6 million, with a square foot value of \$54.44. In contrast, the value of non-office commercial space is \$8.9 million with a square foot value of \$57.23. Interestingly, two-thirds of the non-office space value, approximately \$6.0 million, is attributed to an Alzheimer's care facility that was constructed in 1998. This 50,000 square foot facility has an assessed value per square of \$120, which substantially increased the average square foot value along this section of the corridor.

Route 3 south also has a significant industrial component, containing approximately 600,000 square feet of building space, not found elsewhere in the community. Roughly 70% of this space is primarily manufacturing oriented while 30% is non-manufacturing, or a combination of the two. Total assessed value of industrial buildings in this sub-market is approximately \$20 million.

In summary, Route 101 represents a significant portion of the town's non-residential property tax base. Of the approximate \$254 million in non-residential assessed value located on the Route 101 and Route 3 corridors, Route 101 accounts for approximately 22% (\$55.6 million). Within the Office sector however, Route 101 has a more prominent role. As illustrated in Table 2, the study area accounts for almost 32% of total office space and 29% of the assessed value in this category. In the non-office category the Route 101 corridor has a reduced presence in comparison to Route 3. Total square footage of non-office space on the Route 101 corridor represents only 18% of the total in this category and 17% of the assessed value.

### ***3.2.3 Build-Out Analysis and Development Potential***

#### **3.2.3.1 Recent Development Trends**

Another useful perspective for comparing the two primary sub-markets within Bedford, is the amount of development that has occurred in these areas over the last decade. Based on an analysis prepared

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for the town's recently completed master plan, approximately 930,000 square feet of commercial building space was constructed between 1988 and 1998.<sup>2</sup> Of that amount, approximately 22,000 square feet was located on the Route 101 corridor, of which about 10,000 square feet was office space. Total assessed value of buildings added to the corridor during this time period was approximately \$1.1 million. In comparison, over 900,000 square feet was added along the Route 3 corridor, in the combined north and south sub-markets, which had a total assessed value of approximately \$44.8 million.

Less than 100,000 square feet of the Route 3 development between 1988 and 1998 represented new office construction. The majority of the remaining development during this period was comprised of retail uses (500,000 sf), nursing home facilities (110,000 sf), and industrial manufacturing facilities (133,000 sf).

It should be noted that these square footage figures represent new building construction only and does not account for any additions to existing buildings that may have occurred. It should also be recognized that the Route 101 corridor has considerably less land available for potential commercial development than did the Route 3 corridor. This fact, combined with the availability of municipal sewerage along the Route 3 corridor, creates a greater likelihood that the Route 3 sub-market would develop at a faster rate.

### **3.2.3.2 Build-Out Analysis**

This section provides an overview of future development potential along the Route 101 corridor. This potential has been evaluated based on two different scenarios. The first scenario looks at development potential on parcels located in existing commercial districts along the corridor. The second scenario examines the development potential along the corridor without any constraints imposed by existing zoning or physical factors. Both scenarios present conceptual growth forecasts for the corridor over the next 20 years based on historical absorption levels in Bedford as well as potential changes in existing market demand. Because the purpose of the analysis is to give an upper limit of potential development, it does not consider individual site constraints (which can often be over-

<sup>2</sup>Strategic Master Plan Update 2000, Bedford, New Hampshire, pg. 5-13, prepared by RKG Associates, Inc., March 2000.

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come if values are sufficiently high or avoided by more intense development on other parcels).

### *Development Potential Under Existing Zoning*

Commercial zoning districts in the Route 101 corridor study area currently exist as four non-contiguous “islands” dispersed along the length of the highway. There are two primary types of zoning districts designated on the town’s official zoning map. These include the Commercial and Office districts with two additional parcels (containing less than 3 acres) designated as Highway Commercial. A modest amount of undeveloped land remains in these non-residential zoning districts. Based on the town’s assessment records, as well as a field survey of the study area, it is estimated that there is approximately 70 acres in the Commercial zone and 15 acres in the Office zone that are undeveloped. Almost half of this acreage is contained in two adjacent parcels that are located at the intersection of Route 101 and Route 114. The 85 acres of remaining undeveloped, commercially zoned land, represents approximately 28% of the total 294 acres that are zoned for non-residential development along the study area corridor.

Potential development on these remaining 85 acres has been estimated based on a floor area ratio (FAR) method. A FAR represents the ratio of building square footage to lot size. For example, if a 10,000 square foot building was located on a 100,000 square foot lot, the FAR would be 10% (100,000 sf divided by 10,000 sf). The FAR for non-residential development varies by type of land use since certain types of uses, such as manufacturing plants or warehouses, typically occupy much more of a parcel than retail uses, for example. Analysis conducted during the town’s recent master plan update process calculated the average FAR for each zoning district within community. These FAR calculations have been used to evaluate development potential within the Route 101 study area.

The Office zoning district has an average FAR of 18%. Applying this percentage to the remaining 15 acres of undeveloped land suggests that an additional 117,000 square feet of building space could potentially be constructed. The Commercial zoning district has an FAR of only 10%. This suggests

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that an additional 296,000 square feet of building space could be constructed in this district. Combined, vacant land in these two zoning districts is estimated to have the potential for a total of 412,000 square feet of additional building space based on the average FARs for the town.

There is currently a conceptual proposal to construct 250,000 square feet of retail space on the 34 acre parcel of land at the intersection of Routes 101 and 114, which is in the Commercial district. This proposed square footage is larger than the amount that would be derived using the FAR method, which would be closer to 150,000 square feet. The reason for this is that this large parcel is an anomaly in the Commercial district where most previously developed parcels are considerably smaller in size. To reflect this factor, the total estimated build-out for the corridor has been increased by 100,000 square feet, which brings the potential total of additional building square footage to approximately 512,000 square feet.

There is also the potential for future development through the expansion of existing commercial buildings located within the study area corridor. These so-called *underdeveloped* parcels have been developed at an FAR that is lower than the average within their respective districts. Analysis completed for the master plan estimated that there was the potential for an additional 90,000 square feet of expansion in the Commercial district and 38,000 square feet in the Office district. This represents the potential of an additional 128,000 square feet building expansion for parcels along the Route 101 corridor. Including this redevelopment, the total additional commercial space that could be built in the Route 101 Corridor could range up to 640,000 square feet, which is equal to approximately 80 percent of the development already in place.

The time frame for this build-out will depend on local and regional market conditions in the future, as well as other factors such as infrastructure availability and site constraints. Over the past decade (1988 to 1998), Bedford absorbed approximately 930,000 square feet of commercial and industrial building space. This represents an annual average of 93,000 square feet for the town as a whole. The majority of this space was added along the Route 3 corridor with a relatively small amount, approximately 2,000 to 3,000 square feet on an annual average, constructed on the Route 101 corridor.

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The town's recent master plan estimated that build-out of the remaining commercially and industrially zoned land would take approximately 20 to 25 years. While this is considered a reasonable time-frame for the town as a whole, it is possible that the Route 101 corridor could achieve build-out more quickly given the limited amount of developable land available. This likelihood is supported by the conceptual development proposal for the construction of 250,000 square feet of space at the intersection of Routes 101 and 114, which would use up almost half of the remaining developable land along the corridor. In fact, this proposed project, which includes a super grocery store, big box retailer, and restaurant, could significantly change the nature of the Route 101 sub-market within the community. It is very possible that the development of this site would create an attraction for additional retail development along the corridor that does not presently exist with the current retail base.

#### *Development Potential Under Revised Zoning*

In addition to the build-out of currently zoned non-residential land, it is possible that land use regulations could be altered in the future due to changing circumstances along the corridor. That is, if the character of the corridor were to become inhospitable for residential use due to increasing traffic impacts and incompatible development on parcels already zoned commercial, there could be pressure on the Town to rezone more land for commercial use.

Rezoning would be necessary but not be sufficient to stimulate additional development, which would require the assemblage and redevelopment of existing residential properties, and in some cases construction premium costs to work around wetlands and deal with steep slopes. However, this is not an uncommon occurrence given sufficient market demand combined with improvements to the transportation system. In fact, this conclusion was one of the findings of a recent state-wide study of sprawl-related development in New Hampshire.<sup>3</sup> This study, which examined the changes in development patterns between 1974 and 1992, found two important facts with regard to this issue. The first is that, as population growth increased the demand for commercial goods and services, communities tended to expand their commercial zoning districts in order to support this

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growth and maximize their non-residential tax base. The extension of these commercial districts typically took the form of “ribbons of development” along the frontage of existing arterial highways, which in many cases were State highways. The second conclusion was that highway improvements, combined with regional growth, will often accelerate and intensify this type of development pattern.

The transformation of the Route 101A corridor represents a clear example of how the land use environment along a highway can gradually change over a long period of time. It also illustrates that land use decisions made in one community, such as rezoning up to an adjoining town line, can affect land use decisions in another community.

In addition to rezoning, the Zoning Board of Adjustment (ZBA) may in some cases grant waivers and variances, under specific circumstances, if deemed appropriate. In particular, the ZBA may determine that the existing zoning restricts a specific property from being used in a reasonable manner. Although this test of “reasonableness” has long been one of the criteria for granting a variance in New Hampshire, a recent Supreme Court decision has expanded how the term reasonable should be interpreted by a ZBA. [See the RKG report in the Appendix for more detail on this issue.]

Based on the assumptions that zoning would be either changed or varied, parcels acquired and assembled, and wetlands and slope constraints could be overcome, 93 parcels along the corridor, which have a total of 478 acres, could potentially support long-term redevelopment. Estimating potential build-out of these parcels was done using the floor area ratio method based on an FAR of 10% to 15%. The 10% is the historical average for Bedford in the Commercial zoning district while the 15% is more a typical density for new commercial development in suburban locations. Although this FAR is higher than the historical average in Bedford, it takes into account the possibility that redevelopment of the corridor would occur through the assemblage of larger parcels at densities that are more commonly found in regional commercial development.

Given these parameters, it is estimated that a maximum range of 2.1 to 3.1 million square feet of building space could be added to the corridor through the consolidation and re-development pro-

<sup>3</sup>Managing Growth in New Hampshire - Changes and Challenges, NH Office of State Planning and RKG Associates, Inc., December 2000.

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cess. This square footage would be in addition to the 512,000 square feet of potential new space that could be constructed in the existing Commercial and Office zoning districts along the corridor.

In summary, the build-out analysis is not a prediction of future growth, but it does give an upper limit to what could occur under the assumptions of the analysis, either under existing zoning or without zoning constraints. As discussed in the recommendations section of this report, the study of development potential, together with future traffic projections, suggests that the Town should both take steps to insure high quality of new development and access management in the currently zoned commercial parcels (both vacant and developed), as well as to avoid future commercial development on land that is currently residentially zoned.



*Open Fields at Bragdon Farm, Amherst  
(photo by Jayne Spaulding)*

### **3.2.4 Zoning Diagnostic**

A diagnostic analysis of Bedford's zoning was preformed by Community Planning Solutions; it is included as an Appendix to this report.

#### **3.2.4.1 Existing Zoning Districts Along the 101 Study Corridor**

The following zoning districts abut the study corridor:

- Residential and Agricultural (RA) – This district bounds a substantial portion of the frontage areas on both sides of the Corridor. The zone is characterized by single family residential use, with most properties not taking direct access from 101. Minimum lot size and frontage is 1.5 acres and 150 feet.
- Commercial (CO) – This district also bounds a substantial portion of the frontage areas on both sides of the Corridor. The zone is characterized by small retail uses and professional offices. Minimum lot size and frontage is 1.5 acres and 175 feet. 60-foot setbacks are required in front (and along side streets). Maximum building height is 48 feet and maximum lot coverage is 25 percent. Most of the commercial uses in the corridor do not come close to the height and lot coverage maximums.
- Highway Commercial (HC) – This district is only minimally represented on the corridor, with one small, rectangular area on the southbound side, and a smaller parcel on the northbound side,

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within the Historic District. Both contain gasoline filling stations. Minimum lot size and frontage is 1.0 acres and 150 feet. Setbacks, height, and lot coverage requirements are the same as for the CO zone.

- Office (OF) – The district abuts the 101/114 intersection, is between Pilgrim Drive and Wendover Way, and is traversed by the New England Power Company Easement. Professional office development and related uses characterize the district. Dimensional regulations are the same as for the HC zone.
- Historic District (HD) – This overlay district traverses the north and southbound sides of the corridor, between the PSNH Easement to the west, and Bedford Center Road to the east. Historic buildings, including residential and civic structures, characterize this district.

Not along the corridor, but of important relevance to it, is:

- The U.S Route 3 Corridor Performance Zone (PZ) – This district, added to the Zoning Ordinance in 1993, bounds both sides of Route 3, and begins at the Merrimack Town Line, extending northerly above the Bedford Interchange of the F.E. Everett Turnpike.

#### **3.2.4.2 Opportunities to Enhance and Improve Existing Regulations**

Based upon the consulting team's analysis, options for regulatory change include:

- Further refinement and exclusion of automotive-oriented uses (such as parts sales) from the 60 commercial zones along the corridor;
- Establishment of maximum size thresholds for commercial development along the corridor;
- Establishment of maximum setback requirements to discourage domination of parking areas in front yards of commercial development;
- Establishment and utilization of design guidelines for the Corridor to reinforce a neighborhood and village commercial vocabulary; and
- Long-term consideration of a Bedford Village Overlay District to help foster the Town's desired character for the Corridor.

These recommendations are discussed in detail in the Appendix to this report.

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#### 3.2.4.3 Should Rezoning Land along the Corridor be Considered?

Until design guidelines and maximum building size thresholds are established for the commercial districts along 101, the Town should resist and discourage requests to up-zone land along 101 (i.e., convert residentially zoned land to the commercial district). After guidelines and thresholds are established, the Town could consider adjusting commercial district boundaries, but only with the following considerations:

- The boundary change, based on build-out and traffic analysis, would not degrade levels of service;
- The change would offer access management advantages, e.g., curb-cut consolidation; and
- The change would have other aesthetic and design advantages.

It may also be useful for the Town to consider allowing neo-traditional housing, perhaps in townhouses or in units placed above retail stores or offices. Presently, most forms of housing are prohibited within the CO and HC Districts. This exclusion deserves to be examined, particularly since alternatives to strip and sprawl-type development is desired for the Corridor.



1. Boynton Street west toward Bedford Center. Rt. 101 interchange ahead



2. Rt. 101 west, towards Bedford Center. Bedford Village Inn on right.



3. Rt. 101 west, towards Bedford Center.



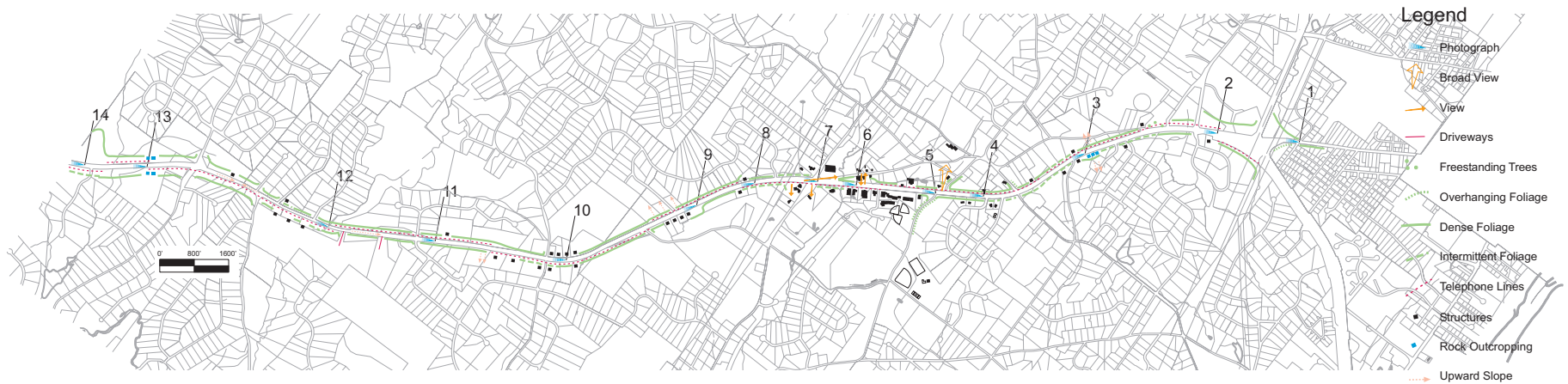
4. Rt. 101 west, at Bedford Center. Approaching Bell Hill Road on right.



5. Rt. 101 west, at Bedford Center. Approaching Village Shops of Bedford on left.



6. Rt. 101 west, approaching Wallace Road. Vista Mall on right.



Visual analysis map



7. Rt. 101 and Wallace Road



8. Rt. 101 between Hitching Post Lane and Kahliko Lane.



9. Rt. 101 heading west.



10. Rt. 101 at Hardy Road heading west. Concentration of retail uses.



11. Rt. 101 at Grey Rock Road heading West.



12. Rt. 101 at Beaver Lane. Retail strip.



13. Rt. 101 towards Amherst. Open field ahead on right.



14. Rt. 101 at Amherst.

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### 3.3 Corridor Visual Analysis

The Bedford portion of the Route 101 Corridor can be divided into three areas of distinct visual character:

- an eastern section from Bedford Town Center to the Manchester line,
- a center-west section from Wallace Road to the area around Elk Drive, and
- a western portion from Elk Drive to the Amherst town line.

The eastern portion has a high degree of roadside development, including the area referred to in this report as the “commercial center” – the developed area between Nashua Road and Wallace Road. There is a consistent line of trees on either side of the road that is often located far back from the road edge. Patches of foliage, however, are close to the road edge, creating a tunnel-like character. The Bedford Village Inn and large trees in front of it are a distinctive feature, as are the wetlands east of Meetinghouse Road, the historic house near the corner of Liberty Hill Road, and glimpses of the historic center at Meetinghouse Road.

The center-west portion of Route 101 has gentle slopes and a dense line of foliage close to the road edge. The line of foliage is periodically interrupted by roadside commercial and residential development, particularly at the Wallace Road intersection and on the south side of the highway between Hitching Post Lane and Kahliko Lane, where the view widens to include parking lots and buildings. The historic barn at the Wallace Road intersection is a distinctive feature.

The western section of Route 101, closer to Amherst, is characterized by a tree line that periodically opens up to rolling green fields and glimpses of the countryside, and less development along the road edge, with the exception of the small commercial area just east of Gage Girls Road.

Overall, the presence of green “walls” and fields along most of the highway is the corridor’s most significant visual feature. Appropriate landscape and architectural design guidelines for commercial development can help maintain this green edge.

### 3.4 Town Center Analysis

#### 3.4.1.1 Town Center Land Use

The town center can be thought of in three parts:

- the historic town center along Bedford Center Road and adjacent streets
- The “commercial center” along Route 101 from Nashua Road to Wallace Road, and
- The recreation area south of Route 101 along Nashua Road.

Most retail uses are concentrated to the south of the historic center along Route 101. Public and institutional uses such as the historic town hall, former fire station, library, and Presbyterian church are scattered throughout the historic town center. The remaining land in and around the historic town center is residential.

The town center is relatively large. The distance from the Town Offices to the Historic Town Hall is approximately one-half mile, or a 10-minute walk. From Meetinghouse Road to Wallace Road is approximately one mile.

#### 3.4.1.2 Visual and Urban Design Analysis

The town center of Bedford is unlike most traditional New England town centers. Rather than a single concentrated area, either along a street or around a central square with radiating streets, Bedford’s historic center is organized in a decentralized (or “braided”) fashion. In Bedford, this results in a series of separate but related places where the streets intersect. In each of these places, there is a sense of being in a separate place, but also of being in Bedford Town Center as a whole.

Four major factors contribute to the overall visual character of the town of Bedford:

- sloped topography,
- dense vegetation in the region and the various types of character it gives to streets,
- views provided by topography and breaks in vegetation, and
- the basic, relatively low density of buildings.



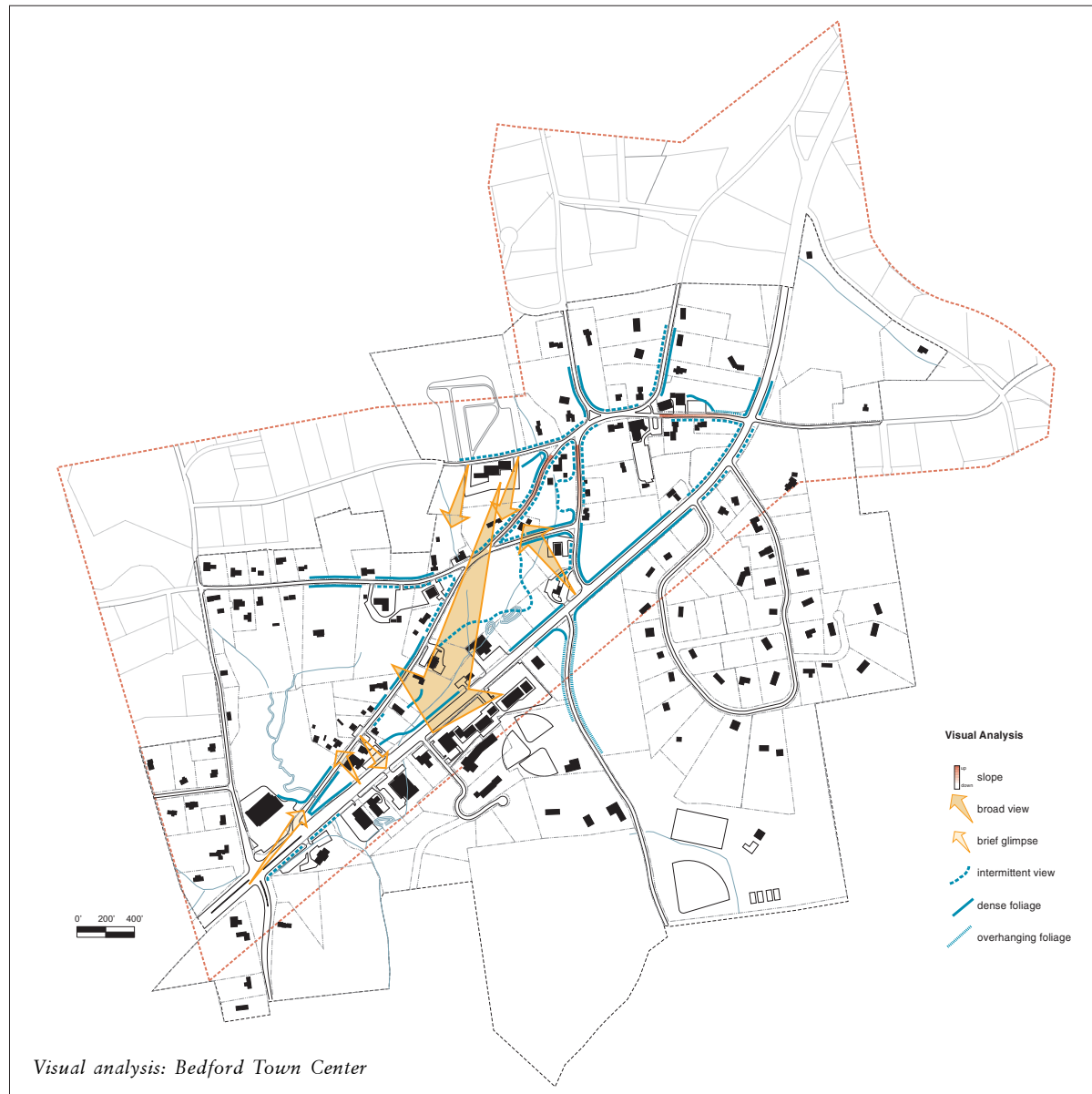
*Town Hall (photo by Lary Ziner)*



*Presbyterian Church in Bedford Town Center  
(photo by Jayne Spaulding)*



*Town Center Land Use*





*Bedford Town Center*

There is an overall slope from Route 101 up to the historic core along Bedford Center Road where the historic Town Hall and the library are located. The increased elevation in this area is used to advantage by the Presbyterian Church where there is a broad expansive view of a valley to the south.

Vegetation and buildings are interwoven throughout the town center. There is a diversity of road edge conditions created by variations in foliage and building densities. Because of the relatively wide spacing of houses and other buildings, one can “read” the underlying landscape at the same time one is conscious of the pattern of buildings, which forms the historic town center.

#### *Activity Generators*

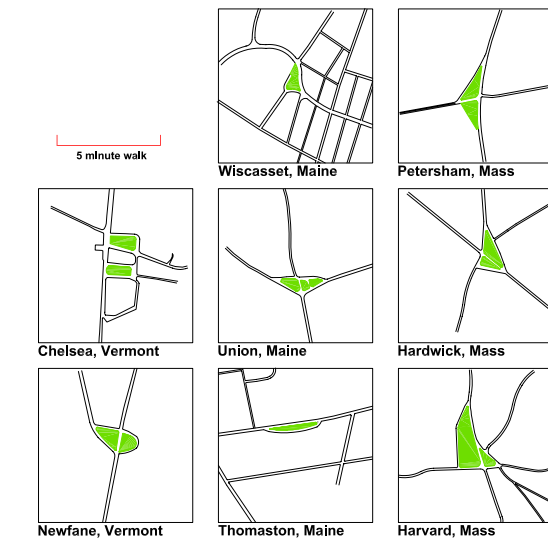
Commercial activity in Bedford Town Center is concentrated along both sides of Route 101 to the east of Wallace Road. The services in this area— particularly at the Vista supermarket and adjacent hardware, cleaners, and drug store— provide the majority of daily retail needs of townspeople as well as passersby. The Bedford Village Shops, with retail, services, and restaurants is also active on a daily basis.

To the north of Route 101 within the historic town center core, there is civic and governmental activity at the Town Offices and Library, residential activity, and only minor retail activity (at the flower shop near the Town Offices, in a historic store building.) The Presbyterian Church is an activity center during Sunday services and other church activities.

South of Route 101 along Nashua Road, moderate-to-intermittently heavy activity is generated by a concentration of ball fields and recreational facilities.

Thus, Bedford’s Town Center has all of the activity centers of a traditional New England town center, but they are more widely separated.





*Town Green comparison*

### 3.4.1.3 Town Center Comparisons

#### *Town Greens*

Many New England towns have a central town green for gatherings and passive recreation. Town greens come in a range of shapes and sizes, and often occur where major roads come together. Amherst and Milford both have central greens at the town center. In Bedford, the center is less dense, and open land and wetlands provide green space that is not actively used at present. Land along Route 101 between Bell Hill Road and Meeting House Road is owned by the Town and is being considered for use as open space or a “Town Common”.

#### *Town Center Types*

New England Town Centers are most often organized along a single strip, such as a dense main street, or around a central public space, such as a town square. The Milford Oval is a good example of the latter type. A town center in this type of New England town is normally thought of by residents of the town as a single place.

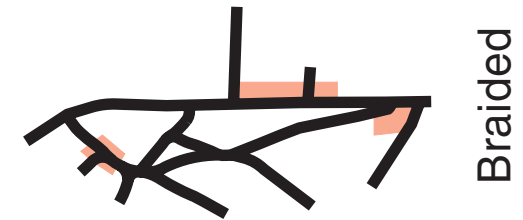
The town center of Bedford is unlike most traditional New England town centers. Rather than a single concentrated area, either along a street or around a central square, Bedford is organized in a decentralized (or “braided”) fashion. Bedford’s center began as a main street stretching from the Historic Town Hall to the Presbyterian Church and graveyard, but it developed and spread out on several intersecting streets at a low density.

In contrast to Milford, where the Oval has many retail uses as well as a church and the Town Hall, Bedford (and Amherst) have little or no commercial activity in the center (although there were once two general stores between the church and town hall). As a result, the commercial and recreational activity centers are separate from the civic and religious activities, creating three areas of activity: commercial uses along Route 101, especially near Wallace Road, recreational activities on Nashua Road, and the civic and religious uses in the historic town center.

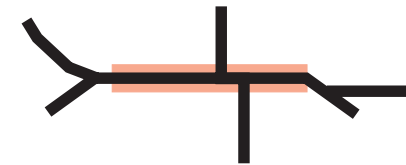
This triangle of uses suggests that one strategy for strengthening the center and making it more usable by pedestrians is to provide better walking and bicycling connections between the activity centers, as well as local street access free from Route 101 traffic.

#### *Town Center Densities*

Buildings in New England Town Centers are typically arranged in dense patterns as shown in the accompanying figure-and-ground diagrams, which are drawn at the same scale. Bedford is unique in that it is much less dense and much more spread out than a typical town center. However, this also creates the ability to read the natural landscape underlying the building pattern, giving Bedford's center a unique sense of place.



Braided

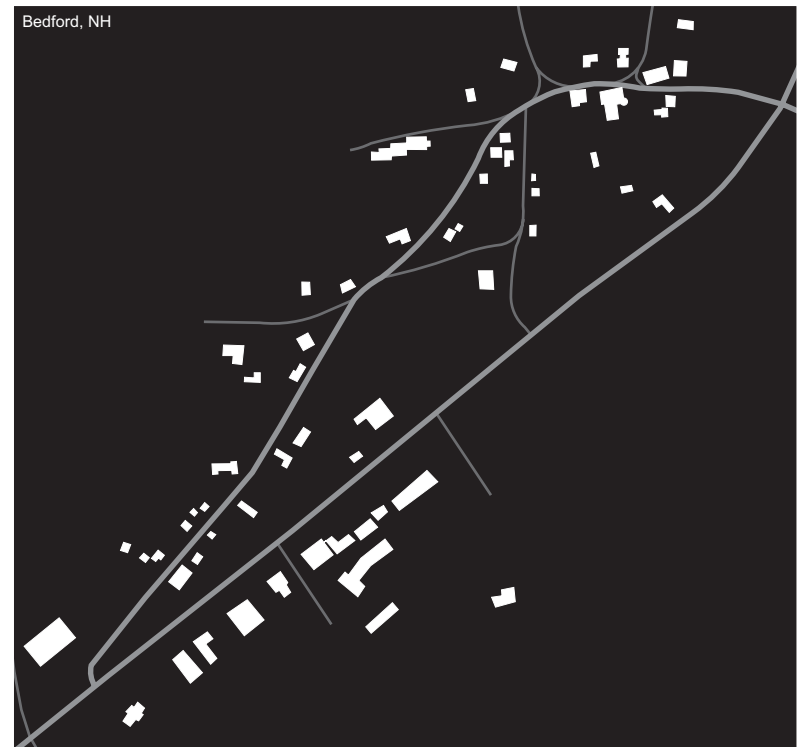


Linear



Crossroads

*Town Center Types*



\*all maps on this page are  
the same scale

*Density comparison*

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### *Town Center Characteristics*

Typical New England Town Centers are characterized by a variety of activities as well as a special sense of place, which is created by a series of aspects typical of these centers.

In Bedford, commercial and active recreation are located separately from civic and religious uses, and there are open fields and wetlands instead of a formal green. Nonetheless, Bedford's historic town center is an excellent though unusual example of the town center form which would be recognized as such by any New Englander.

In summary, Bedford Town Center has a beautiful historic core. Town center commercial and recreational activities are located along Route 101 and Nashua Road in a triangle with the historic Town Hall and library at one corner, the Vista supermarket and shops at a second corner, and Riley Field at the third corner. The Route 101 Corridor Plan considers how best to provide better connections among these activities.



*Old Town Hall*

### Typical New England Town Center

#### *Activity*

- Center of Commerce
- Center of Government
- Place of Assembly/Celebration
- Passive Recreation

#### *Sense of Place*

- Historic Landmarks
- Traditional Architecture
- Pattern of Development
- Density of Development
- Town Green

### Bedford's Historic Town Center

#### *Activity*

- Center of Commerce
- Center of Government
- Place of Assembly / Celebration
- Passive Recreation

#### *Sense of Place*

- Historic Landmarks
- Traditional Architecture
- Pattern of Development
- Density of Development
- Town Green

### 3.5 Summary of Issues and Opportunities

The preceding sections describe a variety of issues in the Bedford Route 101 Corridor: traffic, land use and development, visual, regulatory, and town center urban design. This information can be summarized as a list of issues and opportunities for action to improve both the transportation system and the quality of life in Bedford as it relates to the corridor.

- Traffic volumes are heavy and growing, with significant congestion in peak periods. The west-bound bottleneck at the Route 114/101 intersection and the Meetinghouse Road intersection are examples. The Wallace Road intersection, while heavily used, was reconstructed in the 1990s and functions reasonably well.
- Volumes are expected to increase approximately 40 percent over the next 20 years, greatly worsening congestion at intersections and exceeding the capacity of the two-lane highway.
- Access to and from the highway will become increasingly difficult and hazardous at intersections along the full length of the corridor as well as commercial driveways. Left turns from the highway will be more difficult than right turns, and left turns onto the highway will be particularly difficult and hazardous at all locations.
- Approximately a third of the morning peak hour traffic between Wallace Road and Meetinghouse Road goes through the historic town center due to congestion on Route 101.
- Traffic on residential streets is a problem on Meetinghouse Road, County Road, Liberty Hill Road, North Amherst Road, and in the neighborhood east of Route 114.
- Accidents are a major concern, with uncontrolled access, poor site lines in several locations, and traffic speeds contributing. The Hardy/Jenkins intersection is particularly hazardous.
- There are opportunities to improve traffic operations and safety within the existing right of way, by adding lane capacity and improving intersections.
- The corridor is not currently heavily developed, but there is enough commercially zoned land to almost double the existing amount of development, although the actual amount of development may be reduced by site constraints on some of the vacant parcels.
- Bedford does a good job in reviewing development proposals and securing quality development, but additional improvements can be made through landscape and architectural guidelines.
- Bedford's town center has lower density than most New England town centers, with the key elements of shopping and recreation divided from civic and religious uses by Route 101.

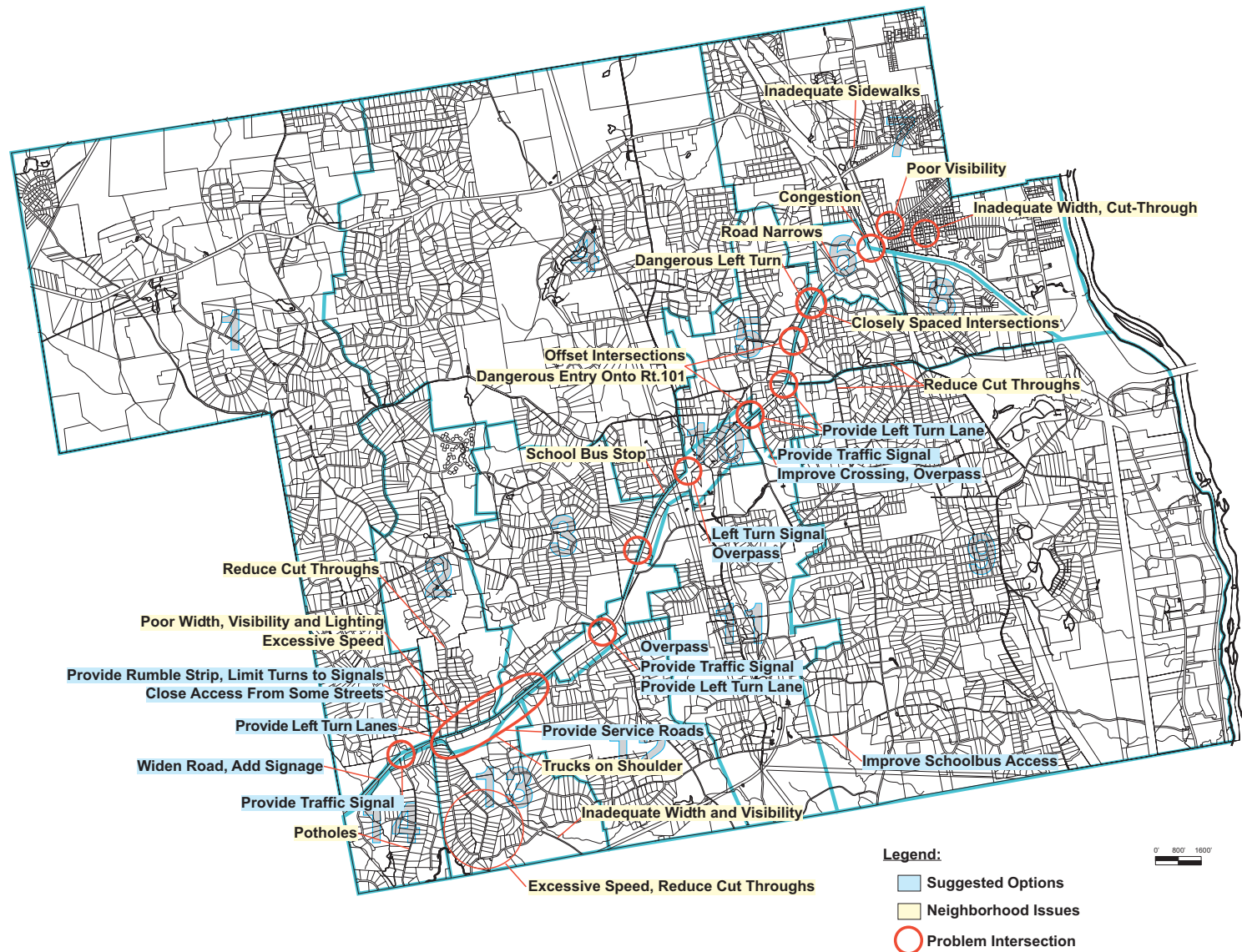


*Route 101 narrows before Constitution Drive  
(photo by Scott Wiggin)*



*Meetinghouse Road at Route 101*

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- The historic town center is among the best in New England and should not be altered, but better connections should be made between it and the uses across Route 101.
  - Visually, the Route 101 corridor in Bedford is attractive and tree-lined for most of its length, with brief interruptions at developed areas. The Corridor Plan is an opportunity to see that this appearance is maintained and even improved, through good landscaping of highway improvements and landscape guidelines for commercial development.
  - Commercially zoned land is located both near the 114/101 intersection and along Route 101 in four separate areas west of Meetinghouse Road. Limiting future development and redevelopment to these areas will help to maintain corridor aesthetics and control access.





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## 4.0 Vision for the Future

This Vision Statement is based on the Visioning Workshop held on September 19, 2001. It was later revised to reflect development of the plan with the Advisory Committee.

Route 101 is a major highway that divides the Town of Bedford and has impacts on neighborhoods and businesses along the 101 Corridor; traffic on the highway creates significant safety problems for those who depend on it for local access; yet, a majority of the traffic carried by the highway is regional, not local, in origin. The following represents a vision for improving the highway and making it a productive and enjoyable part of the Town of Bedford.

Safety is the highest priority. Route 101 should be made safe for Bedford residents and businesses by controlling speeds, providing safer intersection designs and traffic signals as necessary, improving visibility and appropriately managing access to and from businesses. Some inconvenience is acceptable to achieve better safety.

*Possible options:* reduction of posted speeds with increased enforcement, traffic signals at key intersections with coordinated signal timing, restrictions on left turns at some locations, jug-handle intersection for reversing direction.

There should be a better balance between the capacity of the highway and the traffic it carries, but this should be accomplished without undue impacts to residences, businesses, open space, and landscaping along the highway. Improvements to Route 101 should be made so that traffic does not divert through neighborhood streets and cause impacts on these neighborhoods.

*Possible options:* selective widening at intersections while maintaining a two-lane cross-section between intersections, coordinated signal timing, depressing through lanes at some locations.

Conflicts between through traffic and local access should be reduced.

*Possible options:* frontage roads or direct connections between parcels for local access, turning lanes at intersections and business driveways

The best solution from the point of view of many in Bedford would be to remove regional traffic from the Route 101 Corridor (through construction of a bypass); however, it is recognized that a bypass proposal does not have support from other towns and has too many serious obstacles to



Route 101 at Gage Girls Road  
(photo by Sandy Chandler)

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success to make it a practical strategy for solving Bedford's problems with the highway.

The barrier effect of Route 101, which divides the town in half, should be reduced and mitigated. Pedestrians and bicycles should be able to move safely across the corridor, within the town center, and within residential neighborhoods.

*Possible options:* pedestrian, bicycle, and vehicular overpass for local trips at locations such as the Bell Hill/Nashua Road crossing.

The heritage and pedestrian scale of the historic town center should be preserved, but additional town center open space is desired, and existing activity centers such as shopping and recreation areas should be strengthened in a way that is pedestrian-oriented.

*Possible options:* development or redevelopment of some commercially zoned land in the town center area; use of land along Route 101 for town center parkland; use landscaping to denote town center and signal motorists to slow down.

Development along Route 101 should be limited to areas already zoned commercial. New development of vacant commercial parcels and redevelopment of older commercial sites should provide adequate landscaping, building design in keeping with Bedford's heritage, and should be on a scale compatible with the aesthetic and the traffic management vision for the Route 101 Corridor. Development should be pedestrian-friendly.

*Possible options:* site plan review, clear design guidelines and incentives, landscaping along roadway and on commercial development sites.

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## 5.0 Concepts for Improvement of the Corridor

### 5.1 Strategy

The solution to the problems of the Route 101 Corridor in Bedford must have several interrelated parts.

#### 5.1.1 Capacity

In order to reduce traffic cutting through residential neighborhoods, congestion on the highway must be relieved. Congestion already occurs at Route 114, Constitution Drive, and Meetinghouse Road, while the Wallace Road intersection which was improved in the 1990s functions reasonably well. Improvements of congested intersections are therefore of high priority. However, projected traffic increases will exceed the capacity of the roadway segments between the intersections within the 20-year time horizon of the study, and it will be necessary to add a lane in each direction, throughout Bedford. The area east of Wallace Road has the heaviest volumes and needs attention before the western portion of the highway.

#### 5.1.2 Safety

To improve safety, traffic should enter Route 101 at signalized intersections to the extent practicable. The Hardy/Jenkins intersection has experienced many severe accidents and its signalization is the highest priority. Left turns from the highway are obviously safety concerns, because vehicles need first to stop in traffic and then cross the oncoming traffic. As volumes grow, gaps will become less frequent and hazards will increase correspondingly. When lanes are added, left-turning traffic will need to cross two oncoming lanes. While relief can be provided in the short-term by adding center left turn lanes, the only long-term solution to this problem is to restrict left turns to a smaller number of locations by adding a raised median (a curbed area, not a barrier) with left turn pockets at key locations. Outbound left turns (from driveways and side streets onto the highway) are even more hazardous because they must both cross traffic and merge. Consequently, turns onto the highway should be restricted to right-turns wherever possible; opportunities to reverse direction safely must be provided. Alternative routes to signalized intersections will provide safe left turns at the cost of some inconvenience. However, many people already use alternate routes to avoid hazardous

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left turns, and those who are inconvenienced in this way will benefit directly from improved safety. Better enforcement of speed limits is also important.

### ***5.1.3 Access Management***

In addition to improving safety, managing the way traffic enters and leaves the highway will also improve traffic flow. In fact, access management is a key part of the Corridor Plan. It is also increasingly important to the funding agencies, New Hampshire DOT and Federal Highway Administration, that capacity improvements like additional lanes are combined with access management so that capacity is not eroded over time by increases in the number of curb cuts along the highway. Therefore, the Corridor Plan includes access management initiatives such as seeking connections between commercial lots so a single driveway entrance can be shared, and providing connections to collector roads so that traffic can enter the highway at a signalized intersection. In some cases, businesses may need left turn access to and from the highway to function; these should be considered on a case-by-case basis during engineering design, but the overall number of left turns must be reduced to meet the goals of safety and improved traffic flow.

### ***5.1.4 North-South Connections***

Route 101 has a barrier effect, dividing the town in half. To overcome this effect, an overpass in the town center is proposed. This overpass will carry pedestrians, bicycles, and local traffic only. Bedford's town center is low density with key buildings and uses such as the church, Town Offices, Town Hall, library, shopping, and recreation on opposite sides of Route 101. The overpass will connect these uses. Because access to the highway is managed with improved traffic flow on Route 101, and intersection design and signal timing at Meetinghouse Road to discourage traffic from diverting from the highway, the overpass will not stimulate high volumes of traffic in the town center. In fact, traffic volumes in the historic center will be reduced by the Corridor Plan improvements.

At other locations in town, the Corridor Plan proposes signalized intersections rather than overpasses/interchanges. Traffic signals are not as effective as overpasses in terms of north-south connections, but were recommended for a variety of reasons (see Rejected Concepts, below), and they do

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improve vehicular crossings compared to today's unsignalized intersections.

#### ***5.1.5 Town Center***

One of the objectives of the Corridor Plan is to strengthen and improve the town center. The overpass described above is a key part of the strategy to improve the center. Other elements include a landscaped boulevard together with design guidelines for architecture and landscaping specific to development along Route 101 in the commercial center. These will result in a recognizable sense of place, higher quality of development, and a more pedestrian-friendly commercial district. These improvements and gateway landscaping at Wallace Road and Meetinghouse Road will also signal to drivers that they are entering a different stretch of the highway where lower speeds are necessary. The town center improvements will also support a public greenspace on town owned land between Bell Hill Road and Meetinghouse Road.

#### ***5.1.6 Corridor Aesthetics***

All of the intersection and highway segment improvements should be designed in accordance with landscaping guidelines to provide an attractive view from the road and avoid the bare-bones look of the Wallace Road intersection improvement. Design guidelines for commercial development along Route 101 will improve aesthetics both in the center and along the rest of the highway by requiring good site landscaping, compatible architecture, and appropriate lighting and signage, and avoiding large parking lots in front of commercial buildings.

#### ***5.1.7 Pedestrians and Bicycles***

The Corridor Plan suggests priority routes for pedestrians and bicycles in the town center, and provides a shoulder usable by on-the-road cyclists throughout the corridor. The overpass described above is a major connection for both pedestrians and bicycles. Sidewalks should be installed as part of the Route 101 capacity improvements in the commercial center and elsewhere as appropriate, a decision that should be made during engineering design of each roadway segment. A full-scale off-

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road path paralleling the highway was not recommended because it would necessitate land takings.

#### ***5.1.8 Summary of the Strategy***

The Route 101 Corridor Plan is a strategy to reduce problems and realize benefits. It has several key parts:

- Intersections and then roadway segments must be improved to make them safer, accommodate traffic and reduce traffic diverting through residential neighborhoods.
- Access to the highway must be managed for safety. Hazardous left turns must be reduced, and turning traffic should be directed to protected intersections to enter and leave the highway safely. There will be some inconvenience, but the people affected will directly benefit from increased safety. Provisions must also be made for left turns into business entrances.
- An overpass for local traffic, pedestrians and bicycles can reconnect the north and south halves of Bedford's Town Center.
- A boulevard cross-section with a landscaped median, tree-lined roadway, and development guidelines for development will make Bedford's commercial center a better place to do business and shop. The improvements will also signal drivers to slow down.
- Roadway improvements must be well-landscaped, and guidelines for commercial development should be implemented to improve aesthetics.

The following sections present specific concepts for improving the corridor from end to end.

### **5.2 Intersection Improvements**

Intersection improvements address immediate and longer range safety problems and are a fundamental part of the Route 101 Corridor strategy. Improved intersections provide appropriate access to the highway at intervals throughout the town, and, therefore, are a much safer alternative to many smaller points of access with uncontrolled left turns and also provide better traffic flow, reducing the incentive to leave the highway for alternate routes through residential areas; signal timing is an important means to fine tune traffic flow for this purpose.

Operational analyses were conducted for each of the six signalized intersections for the 20-year

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design conditions with the planned improvements in place. For the purpose of designing state maintained roadways, the New Hampshire Department of Transportation (NHDOT) has established Level of Service (LOS) D as a minimum acceptable operating condition. Therefore, each of the key intersections was designed to operate at LOS D or better.

The results of the analyses show that the Joppa Hill Road/Stowell Road and the Hardy Road/Jenkins Road intersections will each operate at LOS B during the 2021 AM and PM peak hour conditions. The Wallace Road intersection would operate at LOS D during the during both the AM and PM peak hours while the intersections of Meetinghouse Road and Old Bedford Road/Constitution Drive would each operate at LOS C during the AM peak hour and LOS D during the PM peak hour. The dual-level traffic signal at the Route 114/Boynton Street intersection will operate at LOS C or better.

### 5.2.1 Joppa Hill Rd. Intersection

#### 5.2.1.1 Description

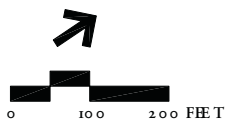
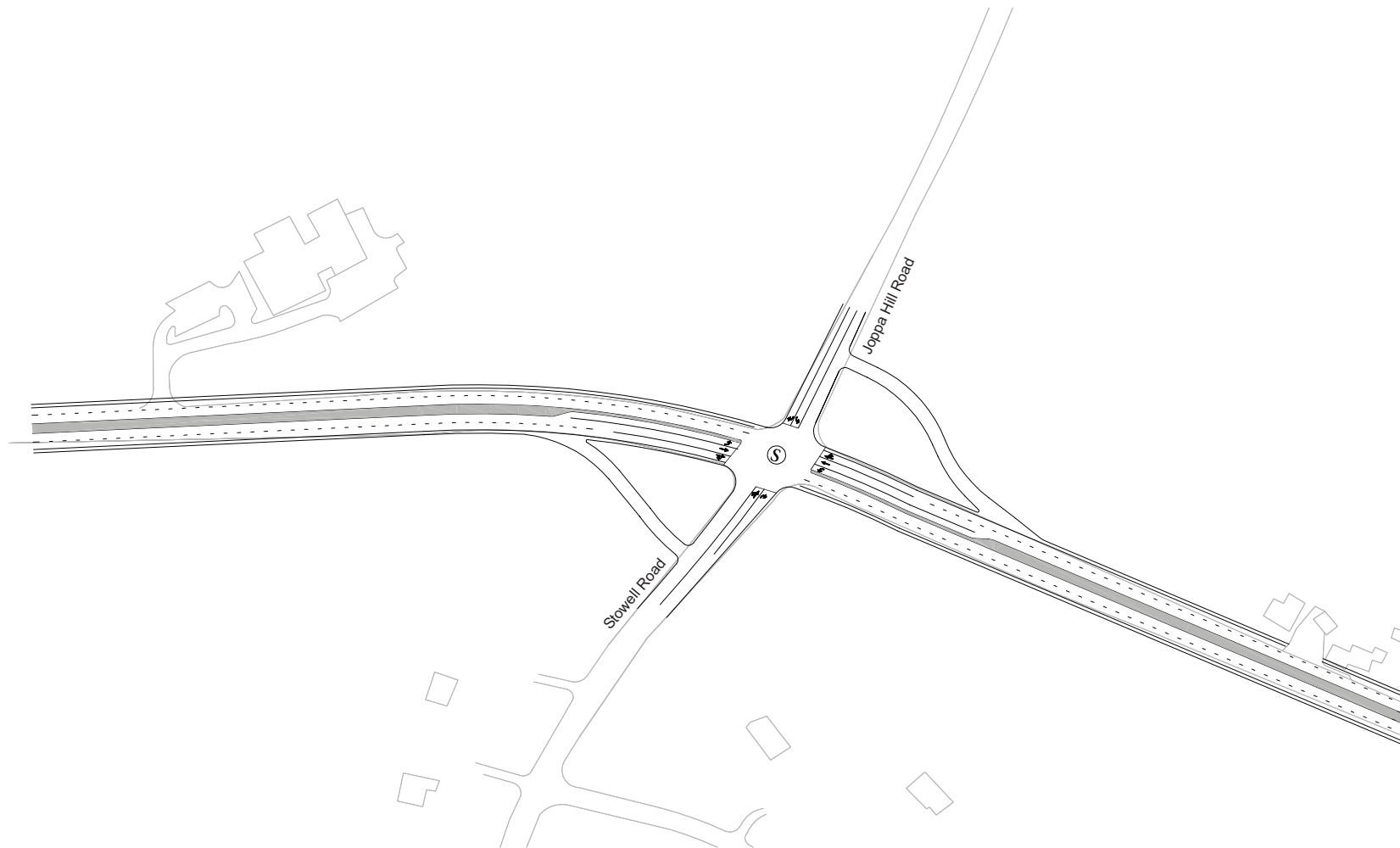
The intersection of Joppa Hill Road, Stowell Road, and Route 101 would be reconstructed as a signalized intersection with a five-lane cross-section. There would be two travel lanes in each direction, one for through and right turn movements, and one for through movements. In addition, there would be a left turn lane in each Route 101 approach. The Joppa Hill and Stowell Road approaches would be widened to provide two approach lanes, allowing separation of left and right turn movements; one of the lanes on each approach would also serve through movements.

In addition, an at-grade ramp is provided from Route 101 in each direction to all “jug-handle turns” in which a vehicle would leave the highway, come to a stop, make a left turn on Joppa Hill or Stowell Road, and make a left turn at the traffic signal. This permits both large vehicles such as school buses and trucks to reverse direction easily.

#### 5.2.1.2 Evaluation

Timing	Long-range: within 15 years
Benefits	-Safer access to/from Joppa Hill Rd -Can safely reverse direction on 101 with jug-handle lane.
Impacts	-No wetland impact -Increased traffic on Joppa Hill Rd. -Some noise from traffic accelerating from the intersection on green.
Takings	-Vacant land near the highway right-of-way for the jug-handle ramps. -No buildings
Access Management	-Provides safer access to 101 from connecting streets, and permits traffic further east whose left turns are restricted to reverse direction easily.
Cost	\$2 million
Comments	Selected in preference to overpass because intersection has lesser land takings, is smaller and farther from nearby residences. The traffic signal is also a lower speed design than an overpass and provides gaps in traffic for downstream traffic to enter the highway.





NH 101 Cross Section

## 5.2.2 Hardy/Jenkins Signalized Intersection

### 5.2.2.1 Description

The intersection of Hardy Road, Jenkins Road, and Route 101 is the most hazardous in the Bedford Route 101 Corridor. It would be reconstructed as a signalized intersection with a five-lane cross-section. There would be two travel lanes in each direction, one for through and right turn movements, and one for through movements. In addition, there would be a left turn lane in each Route 101 approach. The Hardy and Jenkins Road approaches would not be widened.

It is recommended that the Pine Tree Place office development should receive a connection to Jenkins Road, so that traffic from Pine Tree Place to the west could use the traffic signal to make a left turn. This would permit left turns from the existing driveway on Route 101 to be restricted.

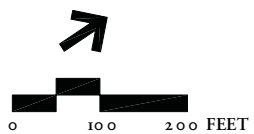
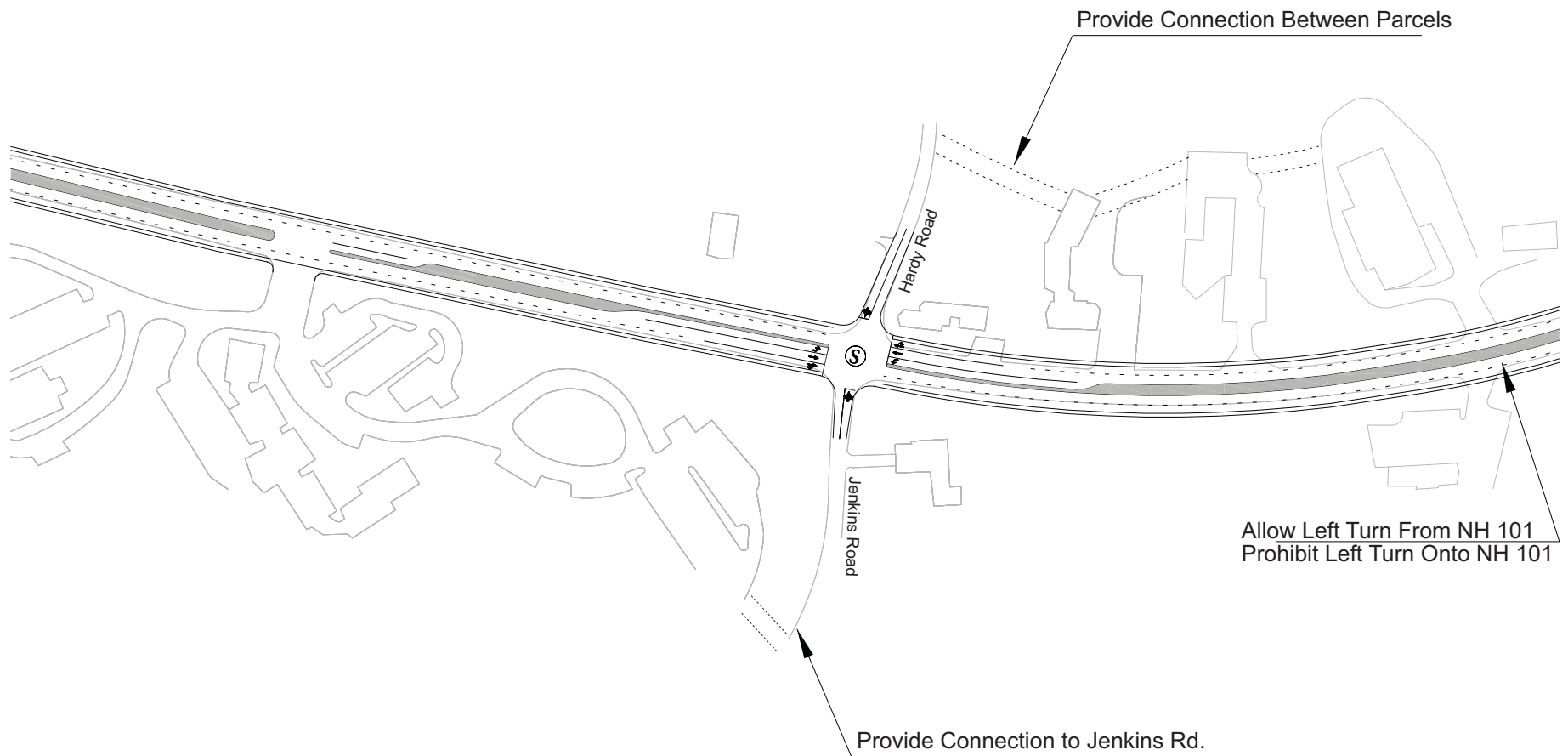
Similarly, the businesses on the north side of Route 101 east of Hardy Road could benefit from a shared connection, enabling left turns to Route 101 eastbound to occur at the traffic signal.

### 5.2.2.2 Evaluation

Timing	Short range: within 5 years
Benefits	-Safer access to Rte 101 -Improved traffic flow
Impacts	-No wetland impact -Increased traffic on Hardy and Jenkins, which are collector streets.
Takings	-Within current highway right-of-way. -New driveway access for business on northeast corner -Kennel business on the northeast corner may require access to be relocated behind the building; taking/relocation of the building is possible, pending engineering design if final curb lines are too close.
Access Management	-Provides more appropriate access point to Rte 101 for Bedford's neighborhoods both north and south of the highway which are served by Hardy and Jenkins Roads
Cost	\$2 million
Comments	Selected in preference to a diamond interchange which would have major business takings.



Hardy and Jenkins Road intersection - photo by Bill Greiner



NH 101 Cross Section

### 5.2.3 Meetinghouse Intersection Improvements

#### 5.2.3.1 Description

The signalized Meetinghouse Road intersection is currently a major point of congestion on Route 101. Meetinghouse Road is also a shortcut to South River Road, Merrimack, and the Everett Turnpike. The improvement would improve the intersection by widening to a five-lane cross-section on Route 101. There would be two travel lanes in each direction, one for through and right turn movements, and one for through movements. In addition, there would be a left turn lane in each Route 101 approach. The Meetinghouse Road approaches would not be widened, both to reduce impacts and to discourage using Meetinghouse Road as a shortcut.

The intersection also acts as a gateway to the his-

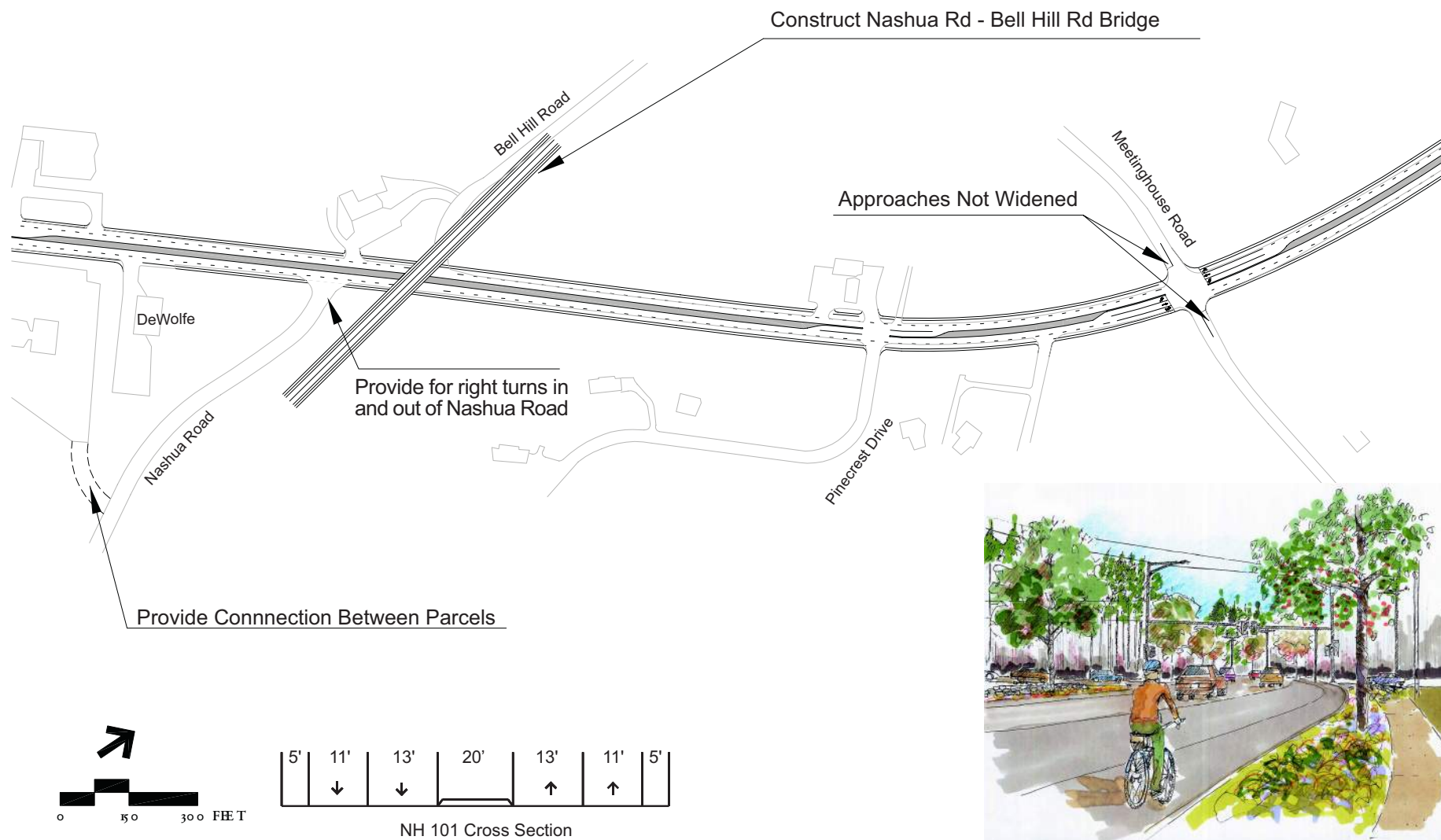


toric town center and the commercial center along Route 101. As such it should be appropriately landscaped as a gateway to the landscaped boulevard section in the commercial center, which will also encourage drivers to moderate travel speeds.

Right-of-way width is adequate for the roadway improvements, but side-slopes may require easements on abutting property; this issue requires engineering design to determine the need for slope easements, which would in any case not be extensive. Similarly, engineering and landscape design must work to minimize impacts to the wetlands which lie close to the intersection.

#### 5.2.3.2 Evaluation

Timing	Short range: within 5 years
Benefits	-Improves traffic flow with 5-lane cross-section. -Reduces traffic cutting through historic town center -Provides appropriate landscaping at gateway to historic center.
Impacts	-Limited wetland impacts; design should work to minimize footprint.
Takings	-Right of way currently adequate but may require limited easements for side slopes. -No building takings anticipated.
Access Management	Traffic would be able to reverse direction during the left-turn signal phase, supporting left turn restrictions in the commercial center.
Cost	\$2 million
Comments	Selected in preference to a diamond interchange, which would be large and have significant impacts to the historic character of the area and to wetlands. An interchange or overpass would encourage more traffic to use Meetinghouse Road and roads in the historic town center.



Approaching the improved Meetinghouse Rd. intersection

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## **5.2.4 Reconfiguration of Rte 101/114 Intersection**

### **5.2.4.1 Description**

#### *Old Bedford Road/Constitution Drive*

The Old Bedford Road/Constitution Drive intersection is currently under traffic signal control and operates at capacity during the peak hours of the day. However, the primary problem with the existing intersection is that the Route 101 westbound approach is limited to a single through lane, which creates a “bottleneck” resulting in traffic queuing back into the Route 114/Boynton Street intersection. The plan calls for the widening of Route 101 at the intersection to include an exclusive left-turn lane, a through lane, and a shared through/right-turn lane in the westbound direction and an exclusive left-turn lane, two through lanes, and a shared through/right-turn lane in the east-bound direction. Lane use on the Old Bedford Road and Constitution Drive approaches to the intersection would consist of a shared left-turn/through lane and an exclusive right-turn lane. Connections to nearby existing land uses such as the Bedford Village Inn and Carlyle Place would be provided to Old Bedford Road and Constitution Drive, respectively to accommodate left-turn movements. This improvement is simple, costing on the order of \$500,000 and requiring only a narrow strip of land within the highway right-of-way. There would not be any takings or wetland impacts and will largely solve the problem for several years.

#### *Route 114/Boynton Street*

The Route 114/Boynton Street intersection is currently under traffic signal control and has multiple travel lanes on all four approaches to the intersection. Once the “bottleneck” condition at the Old Bedford Road/Constitution Drive intersection is addressed, traffic operations at the Route 114/Boynton Street intersection will improve dramatically. However, the existing lane use will not be sufficient to accommodate the 20-year traffic volume projections. Accommodating the future traffic volumes would require additional travel lanes, additional widening and land taking. Additional widening in this area would not be consistent with one of the primary goals of the study, which is to

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minimize roadway cross sections. For this reason the plan calls for the construction of an innovative two-level signalized intersection.

The new intersection, which can for the most part fit within the existing intersection footprint, would consist of a structured level above the existing intersection with the upper and lower levels under traffic signal control. From an operational perspective, the two level intersection will be capable of processing traffic much more efficiently with fewer lanes because each of the signals will function as a simple two-phase operation rather than the existing 4-phase operation. In addition, the topography at the intersection is such that structure fits well within the existing grades.

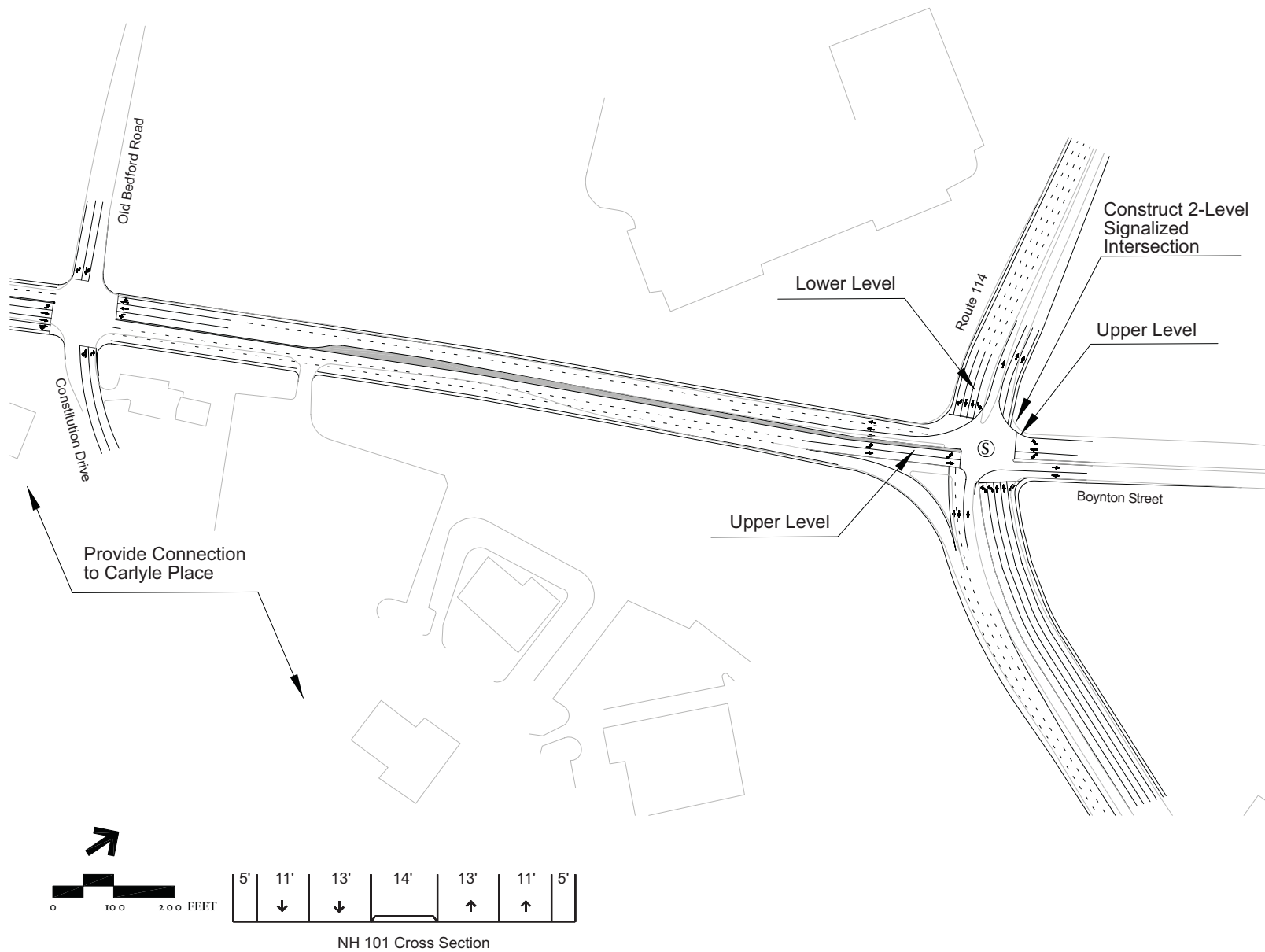
The lower level would accommodate the Route 101 northbound approach and the Route 114 southbound approach. Lane use on the Route 101 northbound approach would consist of a double left-turn lane, two through lanes, and an exclusive left-turn lane. The Route 114 approach would consist of an exclusive left-turn lane, two through lanes, and a right-turn lane.

The upper level would accommodate the Route 101 eastbound approach and the Boynton Street westbound approach. Lane use on the Route 101 eastbound approach would consist of an exclusive left-turn lane and a single through lane. The right turn movement would operate under free flow operation. The Boynton Street approach would consist of an exclusive left-turn lane, a through lane, and a right-turn lane.

#### 5.2.4.2 Evaluation

Timing	Mid- to long-range: within 15 years
Benefits	Substantially improves traffic flow for both Rte 101 and Rte 114 and reduces intersection accidents. Reduces traffic cutting through neighborhood east of Rte 114 via Old Bedford Road and Donald Street.
Impacts	Area affected is largely vacant No wetland impacts.
Takings	Requires small additional area of vacant land, but footprint is similar in size to existing intersection..
Access Management	
Cost	\$15-20 million
Comments	Old Bedford Road/Constitution Drive intersection would remain essentially as improved in the short-term. Approaches on Old Bedford Road may require widening to address traffic from the nearby proposed development, independent of the 114/101 improvements, which are necessary even without the development and adequate to accommodate it. Construction staging and maintenance of traffic plans must be developed during engineering design.





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### 5.3 Segment Improvements and Access Management

As discussed in the first major section of this report, traffic volumes are projected to increase approximately 1.7 percent per year (a roughly 40 percent increase in 20 years.) The existing Route 101 cross-section of one travel lane in each direction cannot accommodate these volumes. If no improvements are made, congestion and short-cutting through residential areas will increase substantially.

The general recommendation for these segments is to add a second travel lane in each direction, maintaining a 5-foot shoulder for emergency stopping and bicycle traffic. There would be a raised curbed median (not a barrier) that would be interrupted periodically with a left turn pocket, permitting vehicles to move out of the through lane before stopping and making a left turn. In keeping with the corridor improvement strategy, these left turn locations would be located periodically where access is needed for businesses and side streets, but not at every such curb cut. This means that the engineering design should include detailed study and identification of connections between parcels, with left turn breaks located so that more than one parcel can share the same left turn pocket. In addition, outbound left turns from driveways and side streets should be avoided wherever possible for safety, although there may be some businesses that require outbound left turns to function. Left turns onto the highway can best be served by connections to collector streets which enter the highway at signalized intersections. The suggestions for the Hardy/Jenkins intersection improvement are a case in point.

As noted above in the strategy section of this report, these turn restrictions will cause inconvenience for some people, but the same people will also be the direct beneficiaries of greatly reduced risk of serious accidents. Many people reportedly already avoid left turns onto the highway for safety.

The impacts of left turn restrictions are discussed in the RKG report in the Appendix. In general, it is concluded that the improvements will be beneficial for businesses owing to much better access on a town-wide and regional scale. For businesses such as gas stations and convenience stores that depend on easy access in and out, there will be some impact if left turns from the business onto the highway is restricted, but there is some data in a published 1999 study indicating that the decrease

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in sales of such establishments was very small (less than 2 percent) after completion of a raised median.

Breaks in the median or mountable curbs would be provided at every point along the corridor that requires access by emergency vehicles.



*West Convenience Store driveway  
(photo by Karen Grimmett)*



*Beaver Lane at Route 101 looking east  
(photo by Karen Grimmett)*



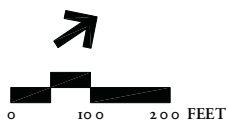
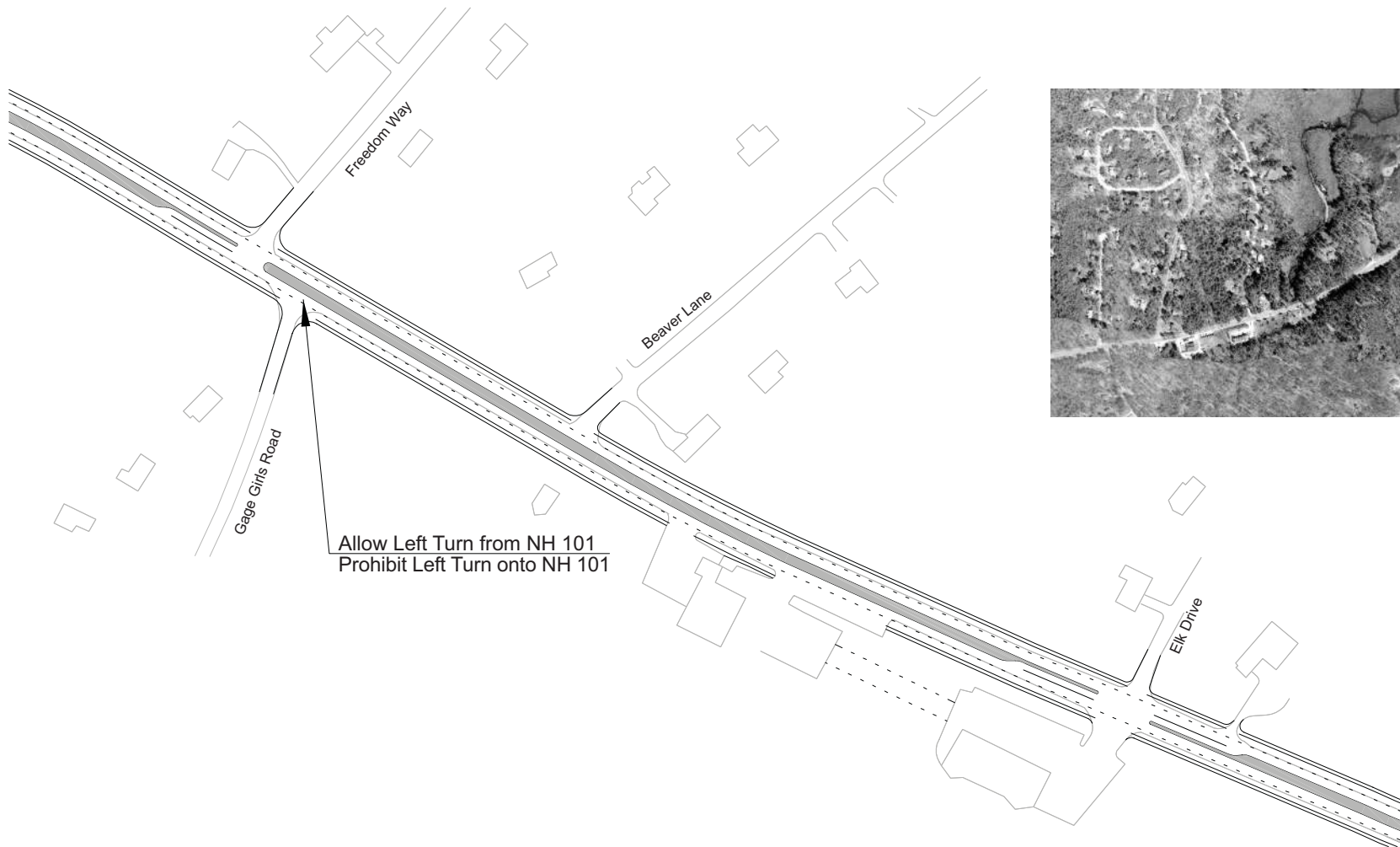
*Elk Drive (photo by Karen Grimmett)*

### ***5.3.1 Amherst Town Line to Hardy/Jenkins Roads***

#### **5.3.1.1 Description**

This section of Route 101 would be widened to four lanes (2 lanes each direction— one 11-foot lane and one 13-foot lane) with a 5-foot shoulder on each side and a 14-foot curbed central median, for a total width of 72 feet, plus landscaped borders. In a portion of this segment, the highway right-of-way narrows from 100 feet to 65 feet, so additional land will be needed, but no building takings are anticipated. Although the final location of left turn pockets will be determined during engineering design, it is recommended that left turns should be considered into Freedom Way (which has no other outlet) and at Elk Drive with a westbound left turn to the West Convenience Store and a connection from this entrance to the Mobil/Dunkin Donuts next door. If outbound left turns are necessary for the businesses, their shared entrance should be opposite Elk Drive. Left turn pockets are also recommended at Hunters Road and Dearborn Lane/Grey Rock Road and at the Weathervane Restaurant; during design, a possible connection from Grey Rock to Hardy Road should be investigated. A westbound left turn should also be considered at Pine Tree Place, with a new exit onto Jenkins Road for traffic needing to turn left to westbound Route 101. Other driveways and Beaver Lane should be right-turn in and out only. A parallel connection from Stowell Road to Gage Girls Road should be considered during design to facilitate westbound movements from Gage Girls Road.

This project is a longer-term priority, and in the short-term provisions should be made for safer left turns by installing a center left turn lane from the vicinity of Gage Girls Road to Elk Drive. This would be an extension of the shorter left turn lane currently being provided at the Mobil/Dunkin Donuts by the business owner. A short left-turn lane should also be provided at Twin Brook Lane.



NH 101 Cross Section

### 5.3.1.2 Evaluation: Amherst Town Line to Hardy/Jenkins Intersection

Timing	Long range: within 15 years; should be coordinated with Joppa Hill intersection. Short-term center turn lane as an interim action.
Benefits	<ul style="list-style-type: none"><li>-Better traffic flow and reduced accidents</li><li>-Safer access for residents of side streets and business patrons</li></ul>
Impacts	<ul style="list-style-type: none"><li>-Limited wetland impacts near West Convenience Store.</li><li>-Inconvenience for movements using outbound left turns</li><li>-Some business impact due to turn restrictions but generally beneficial for business.</li><li>-Highway marginally closer to nearest residences on Freedom Way, Beaver Lane, Elk Drive.</li></ul>
Takings	<ul style="list-style-type: none"><li>-Strip of land to widen right-of-way from 65 to 100 feet</li><li>-No building takings anticipated</li></ul>
Access Management	<ul style="list-style-type: none"><li>-Reduces hazards and impediments to traffic flow by focusing left turn locations. Outbound left turns should be prohibited for safety.</li><li>-Reverse direction at Joppa Hill or Hardy/Jenkins Roads</li></ul>
Cost	\$6 million
Comments	In the short-term it is recommended that a center turn lane be added east of Gage Girls Road to Elk Drive and at Twin Brook Lane. Cross-section west of Joppa Hill Road will be 4-lane with center median based on coordination with the Amherst-Wilton Route 101 Corridor Study.



### 5.3.2 Hardy/Jenkins Roads to Wallace Rd.

#### 5.3.2.1 Description

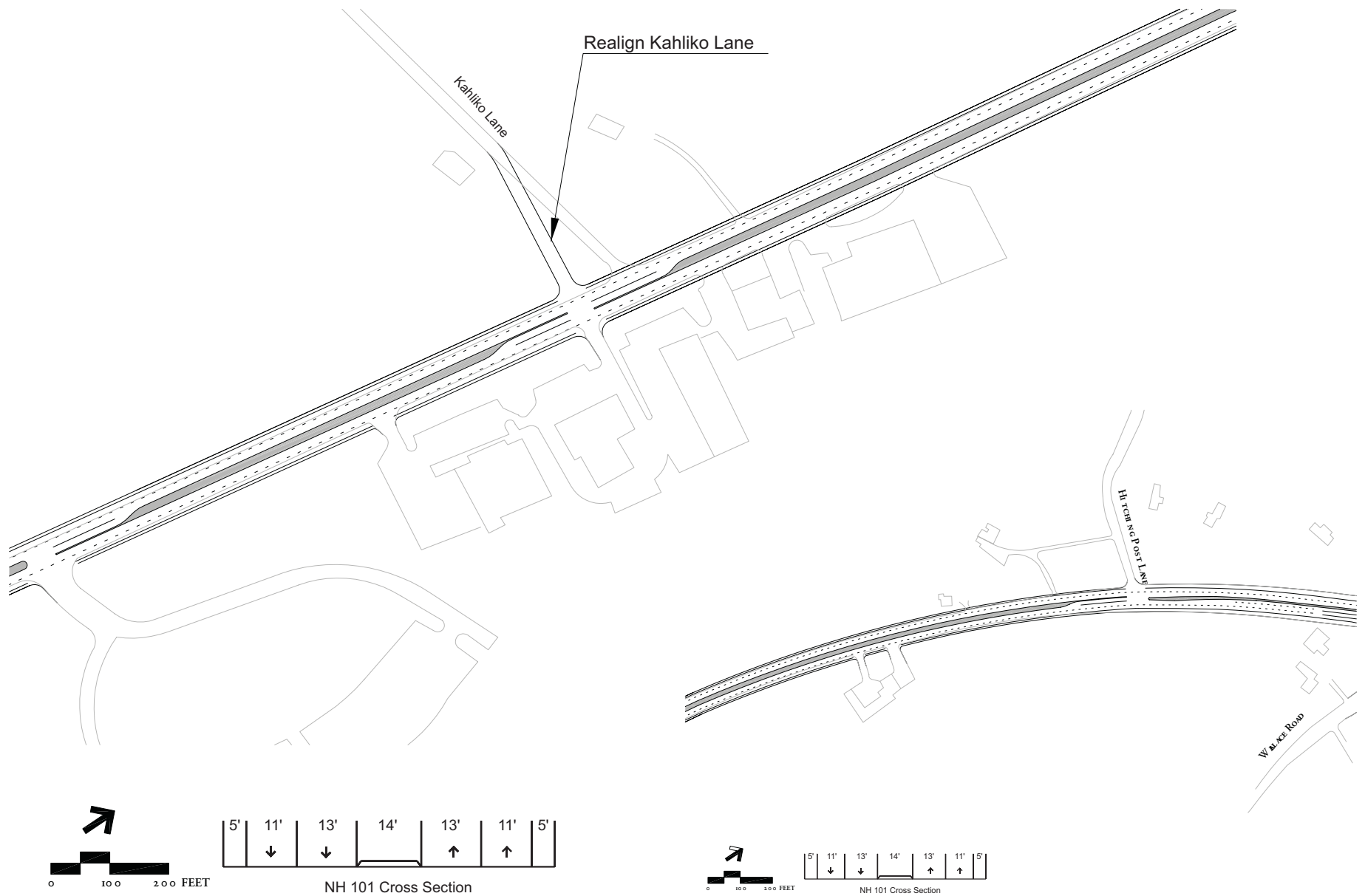
This area would receive the same treatment as the segment to the west, with 2 lanes each direction— one 11-foot lane and one 13-foot lane, a 5-foot shoulder on each side, and a 14-foot curbed central median with left turn pockets, for a total width of 72 feet, plus landscaped margins to the limit of the highway right-of-way, which is 100 feet wide.

At Kahliko Lane, it is recommended that the end of the street be realigned to meet Route 101 at a right angle opposite a curb cut serving several businesses on the south side of Route 101. Left turn pockets are recommended for the Bethany Covenant Church and at Hitching Post Lane. In general, outbound left turns onto the highway should be avoided, although they may be necessary for some businesses. This question and the exact location of left turns should be considered during engineering design with the benefit of detailed survey information and a public process. In the short-term, a center left turn lane is recommended from Kahliko Lane to Wallace Road as an interim action.

#### 5.3.2.2 Evaluation

Timing	Long range: within 15 years; plus short-term installation of interim center turn lane from Kahliko Lane to Wallace Road.
Benefits	-Better traffic flow and reduced accidents -Safer access for residents of side streets and business patrons
Impacts	-Limited wetland impacts near Wallace Road. -Inconvenience for movements using outbound left turns (Kahliko and Hitching Post Lane and businesses.) -Some business impact due to turn restrictions but generally beneficial for business
Takings	-Current right-of-way generally adequate -No building takings anticipated.
Access Management	-Reduces hazards and impediments to traffic flow by focusing left turn locations. Outbound left turns should be prohibited for safety; reverse direction at Hardy/Jenkins or Wallace.
Cost	\$4 million
Comments	Businesses could link parking lots for more convenient shared access.







*Wallace Road at Route 101  
(photo by Scott Wiggin)*

### 5.3.3 *Wallace Road to Meetinghouse Road*

#### 5.3.3.1 Description

This segment of Route 101 encompasses the commercial center and the entrances to the historic town center. It would be spanned by the proposed Nashua Road overpass described in the following section.

The roadway cross-section would have two lanes each direction— one 11-foot lane and one 13-foot lane and a 5-foot shoulder on each side, as in the other segments. Unlike the other portions of the corridor, this segment would be designed as a boulevard with a 20-foot curbed central median with left turn pockets and landscaped margins to the limit of the highway right-of-way, which is 100 feet wide. Roadway width would be 81 feet.

Sidewalks are recommended behind the planting strip on each side of the roadway, and landscaping would involve street trees in both planting strips and trees or other plantings in the median; (see discussion of landscape guidelines in the section below.) Combined with commercial development guidelines, a distinct image and sense of place for the commercial center would be created, the center would become more pedestrian-friendly rather than solely automobile oriented, and drivers would be encouraged to moderate their speed. Gateway landscaping is recommended for both the Wallace Road and Meetinghouse Road intersections to reinforce this distinct character.

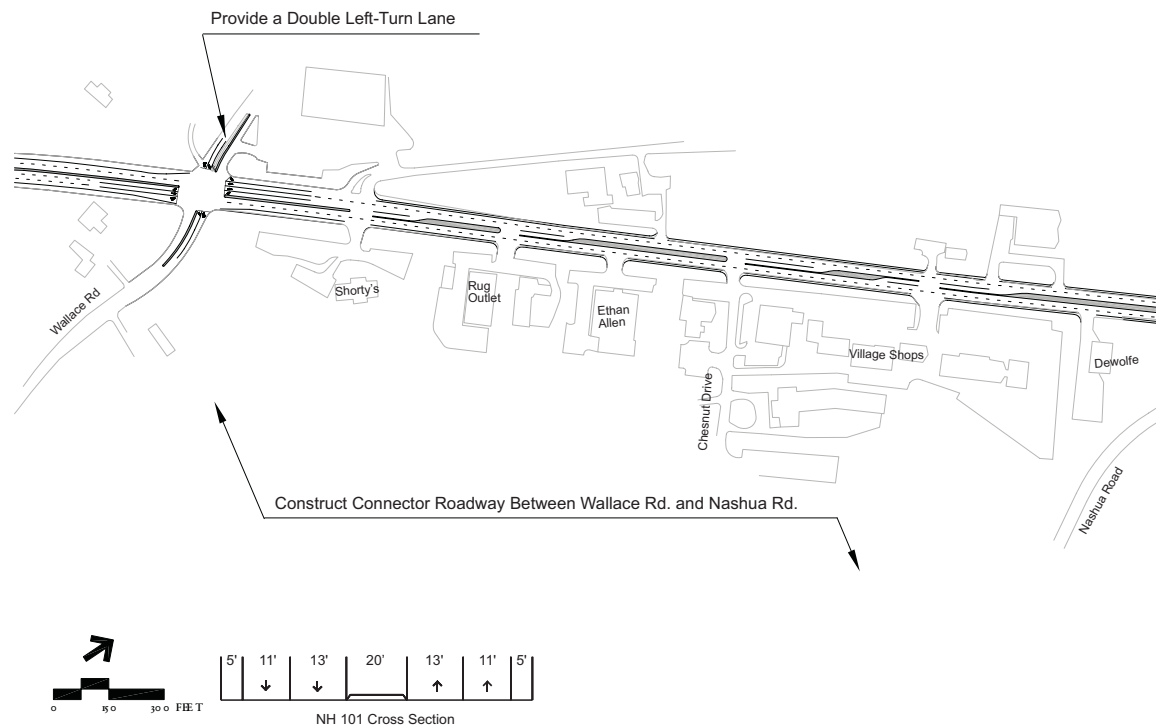


As illustrated, the boulevard median has four breaks for left turns into businesses. A smaller number of breaks may be appropriate, particularly if connections between businesses can be developed during design. As recommended for the other segments of Route 101, exact location of the left turn pockets should be based on detailed survey, consideration of specific business needs for deliveries and outbound left turns, and a public process. Ideally, connections between parcels should include a connector road from Nashua Road to Wallace Road behind the businesses, which would also accomplish the connection discussed in the section below on the Nashua Road overpass.

East of Nashua Road, there would be a left turn pocket in each direction serving the Mobil station and the westerly entrance to Pinecrest Circle. The easterly entrance to Pinecrest Circle would be

right-turn in and out only. Outbound left-turns onto the highway should be avoided if possible but may be necessary for the operation of the Mobil station. From Pinecrest Circle, traffic desiring to go westbound could merge to the left turn lane at Meetinghouse Road, from which a safe U-turn could be made during the left turn phase.

Wetlands occur near Wallace Road (between the Rug Outlet and Hitchingpost Lane) and between Nashua Road and Pinecrest Circle. In both areas, careful design must minimize wetland impacts by using steeper side slopes and/or retaining walls to avoid or reduce intrusion into the wetlands; a permitting process will be part of engineering design.



### 5.3.3.2 Evaluation

Timing	Mid-range: within 10 years
Benefits	<ul style="list-style-type: none"><li>-Better traffic flow and reduced accidents</li><li>-Reduces cut-through traffic in the historic town center.</li><li>-Improves the appearance and pedestrian friendliness of town's commercial center and encourages drivers to slow down.</li><li>-Safer access for residents of side streets and business patrons</li></ul>
Impacts	<ul style="list-style-type: none"><li>-Limited wetland impacts near Wallace Road and between Nashua Road and Pinecrest Circle..</li><li>-Inconvenience for movements using outbound left turns (Pinecrest Circle &amp; businesses)</li><li>-Some business impact due to turn restrictions but generally beneficial for business</li></ul>
Takings	<ul style="list-style-type: none"><li>-Current right of way generally adequate; easements could be used to expand landscaping on either side.</li><li>-No building takings anticipated</li></ul>
Access Management	<ul style="list-style-type: none"><li>-Reduces hazards and impediments to traffic flow by focusing left turn locations. Outbound left turns should be prohibited for safety; reverse direction at Wallace or Meetinghouse Road.</li></ul>
Cost	\$3 million
Comments	Design guidelines for town center reinforce this action. Includes landscaping Wallace Rd. intersection.





*Bedford Village Inn  
(photo by Jayne Spaulding)*

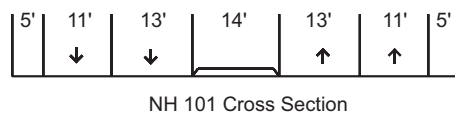
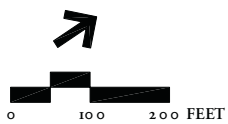
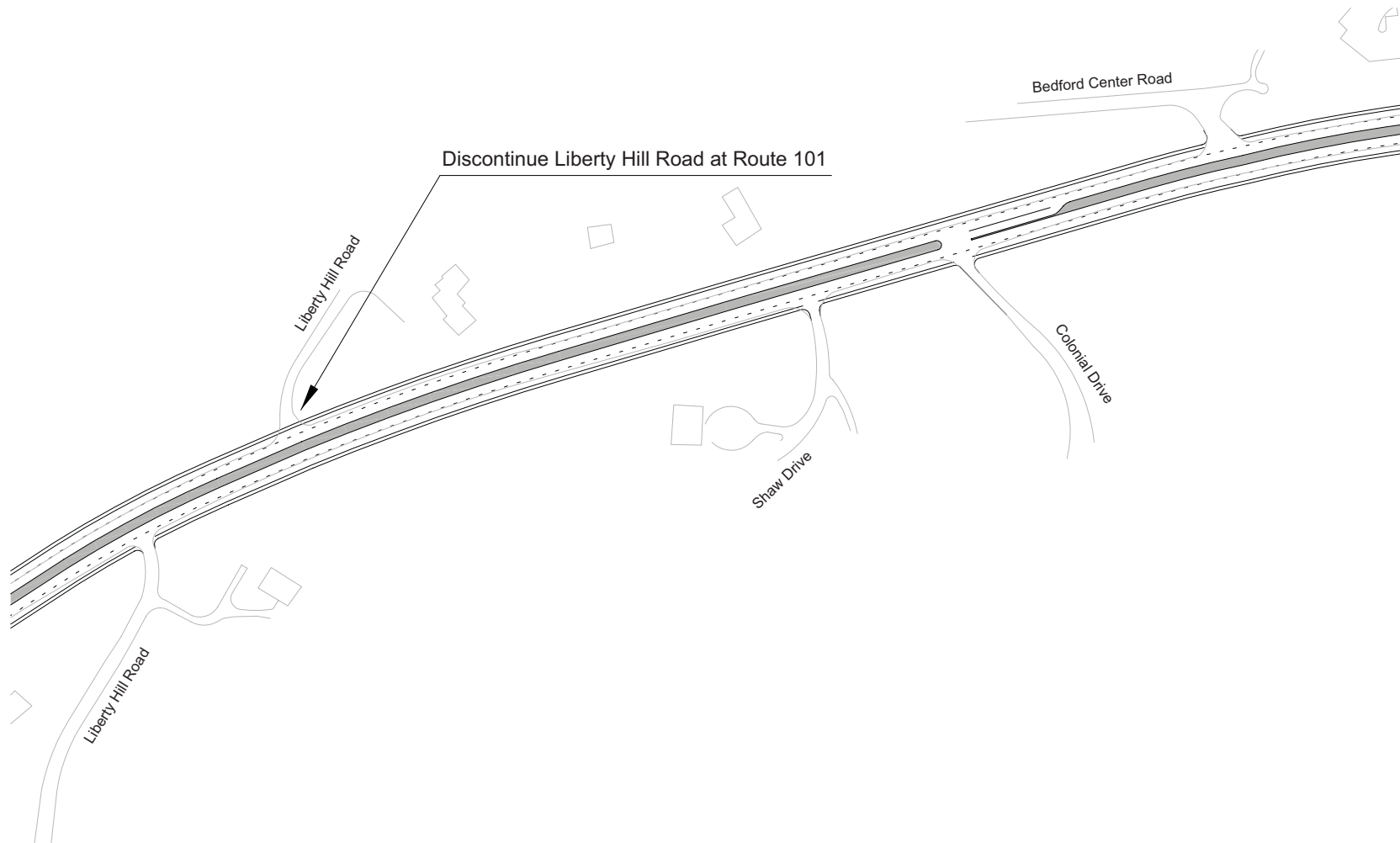


### **5.3.4 Meetinghouse Road to Route 114**

#### **5.3.4.1 Description**

This area east of Meetinghouse Road would receive the same treatment as the segments west of Wallace Road, with 2 lanes each direction— one 11-foot lane and one 13-foot lane, a 5-foot shoulder on each side, and a 14-foot curbed central median with left turn pockets, for a total width of 72 feet, plus landscaped margins to the limit of the highway right-of-way, which is 100 feet wide. At Liberty Hill Road, turns would be restricted to right-turn in and out on the south side of Route 101. The segment north of Route 101 serves little traffic and would be closed altogether, with access for property on this short segment via Bedford Center Road. Shaw and Colonial Drive are closely spaced intersections on Route 101; a left turn pocket into Colonial Drive would be provided and Shaw Drive limited to right turns in and out. A possible connection parallel to Route 101 between Shaw and Colonial would improve access convenience for Shaw Drive and should be investigated during engineering design. At Village Inn Lane, access would be right-turn in and out only; it is recommended that the Village Inn be reconnected to Old Bedford Road by removing the berm which presently blocks this access. Eastbound traffic from the Village Inn would then make a left turn at the Old Bedford Road intersection. Right-turns in and out are recommended for Carlyle Place; a parallel connection to Constitution Drive should be sought during engineering design.

There are large wetlands on both sides of Route 101 east of Meetinghouse Road. Engineering design should strive to minimize intrusion into the wetland by reducing the footprint of the widened roadway, using steep side slopes and/or retaining walls. The existing right-of-way is wide enough to contain the widened roadway and no additional property will be required, although easements for side slopes may be necessary. Care must be taken during design to avoid impacts to the large trees in front of the Bedford Village Inn. The roadway will be only marginally closer to the Village Inn and the historic houses on Liberty Hill Road nearest to the highway, so no historic impacts are anticipated. The area between Constitution Drive and Route 114 is described in the section above on the improvement of that intersection.



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#### 5.3.4.2 Evaluation

Timing	Mid-range: within 10 years
Benefits	-Improves traffic flow and safety. -Reduces traffic cutting through residential areas
Impacts	-Some wetland impact where roadway currently bordered by wetlands between Liberty Hill Rd and meetinghouse Rd.; design should work to minimize footprint. -Some impact to trees on south side of Rte 101 opposite Village Inn.
Takings	-Some easements may be needed for side slopes. -No building takings anticipated.
Access Management	-Reduces hazards and impediments to traffic flow by focusing left turn locations. Outbound left turns should be prohibited for safety; reverse direction at Meetinghouse or Old Bedford Rd.
Cost	\$3 million
Comments	Emergency access provided at all streets.

## 5.4 Nashua Road Overpass and Connector Road

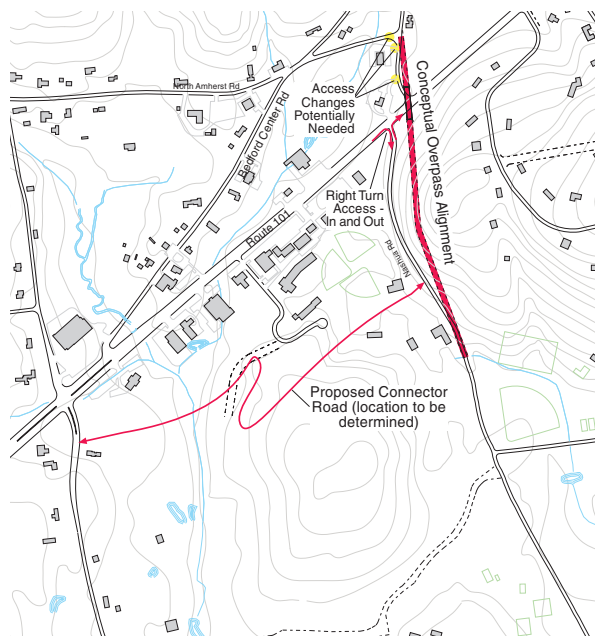
In response to the concern that Route 101 creates a barrier that bisects the town – separating neighborhoods and dividing the town center – a key element in the Corridor Plan is the construction of an overpass that would span Route 101, connecting Nashua Road to Bell Hill Road. The overpass would serve local motorists, bicyclists, and pedestrians. It would provide a single travel lane and a bicycle lane in each direction as well as a sidewalk. The overpass will allow residents of Bedford including children to access such facilities as the library on the north side and the recreational fields on the south side without crossing the highway at an intersection. In response to public comments, the Town Council requested that Nashua Road remain connected to Route 101 for right-turn movement only. To insure that non-local traffic is minimized, direct access to Route 101 at this location should be limited to these right turns in and out of Nashua Road. (If direct access were to be provided for all movements, the town center and the residential neighborhood in the area of Nashua Road and County Road would experience a substantial increase in the volume of traffic.) This improvement also eliminates the current off-set intersection whose location and poor geometry makes it an inappropriate place to access the highway.

The overpass could be a handsome addition to the corridor, providing a gateway to the commercial center from the east. The rendering in this section shows an arched bridge with rustic granite abutments recalling some of the historic bridges in the vicinity. The pictured tied-arch design also has the advantage of a relatively thin roadway deck structure, which will facilitate engineering design of a profile for the overpass.

One of the key components of the overall corridor strategy is to accommodate as many left-turn movements as possible at the six signalized intersections (four existing signals and two proposed). In some areas, this will require internal connections between adjacent properties or, in some instances, the construction of connector roadways parallel to the highway. Without left-turn access to Route 101 at Nashua Road, the nearest traffic signals are located at Meetinghouse Road and at Wallace Road. To gain access to the Wallace Road traffic signal, the plan calls for the construction of a connector road linking Nashua Road and Wallace Road. The connector road would allow motor-



*Nashua Road at Route 101 - photo by Bill Greiner*



ists from the Nashua Road area to access Route 101 westbound at the traffic signal at Wallace Road. It is also important to consider that a parcel of land located on Nashua Road is a potential site for a new school, a proposal for which was recently defeated in a town ballot issue. In the event that a new school is constructed on the parcel someday, the connector road would serve to direct school-related traffic to Route 101 and away from the residential area. However, the connector would serve an important purpose in mitigating local traffic with or without a new school.

### *Local Traffic Analysis*

Throughout the study, residents of the Nashua Road, County Road, and Kennedy Drive neighborhoods have expressed their opposition to the proposal to construct a connector road. They feel that a connector road, particularly if it is located opposite County Road, would increase traffic flow and travel speeds along County Road. The residents of the area raise a valid point, as motorists tend use roadways that provide them the most direct connection to their destination. Constructing a connector road opposite County Road would essentially create a parallel east-west route to Route 101 that would extend from Wallace Road to Patten Road. Such a direct connection might encourage motorists to use County Road as a short-cut route. This would contradict the plan's goal of encouraging motorists to travel on Route 101 and discouraging cut-through traffic in residential areas.

To avoid this direct route at County Road, any connection between Nashua Road and Wallace Road should be located as close to Route 101 and as far away from County Road as possible. A connector road that would run to the rear of the commercial uses along Route 101 with connections to the parking areas and a connection to Chestnut Drive would allow motorists from the various commercial uses to also access the signal at Wallace Road. In addition, if a school is someday constructed on the Nashua Road site, the school could be connected directly to the access road. Note that the connection to the rear of the commercial properties does not necessarily need to be a continuous roadway. It could be a combination of a partial connector roadway with internal connections between the parking lots of the existing commercial establishments.

Some Bedford residents have expressed concern that the overpass could draw additional traffic into

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the historic town center. As stated previously, Nashua Road and Bell Hill Road would be discontinued at Route 101 and the overpass would have no direct access to Route 101. A major reason for not providing direct access to Route 101 is so the overpass would be limited to local traffic and would not draw traffic into the town center. Having said that, the overpass will obviously carry traffic - otherwise there would be no reason to construct it- but it would not be an effective short-cut for through traffic.

It is important to recognize that the construction of an overpass or a new roadway doesn't generate new traffic. It simply provides motorists with additional choices that result in traffic being shifted from one roadway to another. The amount of traffic that might use the overpass can be estimated by examining the existing traffic flow in the area. During the peak hour of the day, the volume of traffic (total of both directions) that currently crosses Route 101 between Nashua Road and Bell Hill Road is relatively low, approximately 35 trips. One reason for the low volume is low demand, but the more likely reason for the low volume is that motorists find it difficult to cross Route 101 at Nashua Road and Bell Hill Road and use other routes.

The two other routes in the area that currently accommodate the crossing of Route 101 are Wallace Road and Meetinghouse Road. Could traffic potentially be drawn from these routes? During the peak hour, the volume of traffic (total of both directions) that crosses Route 101 at Wallace Road is approximately 230 trips. The volume crossing at Meetinghouse Road is approximately 185 trips. The question is how much of this crossing traffic at Wallace Road or at Meetinghouse Road would be drawn to the overpass. The answer is found by examining the origin and destination of motorists and recognizing that motorists will choose the most direct and quickest route.

The majority of the crossings of Route 101 at Wallace Road are associated with commuter traffic where residents of the north and northwest parts of Bedford travel to the south on Wallace Road in the morning and in the reverse direction in the evening. These 230 trips per hour include residents of the North Amherst Road area. With the installation of a traffic signal at the Hardy Road/Jenkins Road intersection, some of this traffic would be diverted to Jenkins Road – perhaps as much as 20 percent or approximately 50 trips. This would reduce the crossing volume at Wallace Road to

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approximately 180 trips. Of the remaining 180 trips, it is expected that only residents living close the town center or to the north in the Ministerial Road area might divert to the overpass. However, as a percentage of the traffic remaining on Wallace Road it is not expected to be much more than 25 percent or approximately 45 trips.

As for the 185 trips crossing Route 101 at Meetinghouse Road, much of this traffic is directed to and from Manchester or beyond and is using Meetinghouse Road to avoid the existing traffic congestion along Route 101. With the corridor improvements to Route 101 in place, many of those motorists will choose to travel along the highway, as it will then be the quicker route. Therefore it is unlikely that much of the Meetinghouse Road traffic would divert to the overpass. However, for the purpose of this evaluation and as a “worst case” scenario, assume that as much as 25 percent or approximately 45 trips are drawn to the overpass.

Therefore considering the 35 trips currently crossing Route 101 at Nashua Road and Bell Hill Road, the nearly 45 trips that could divert from Wallace Road, and the “worst case” 45 trips that could divert from Meetinghouse Road would result in a total volume on the overpass (total of both directions) during the peak hour of as many as 125 trips. For the purpose of comparison, Bedford Center Road within the town center currently processes over 500 trips in just one direction. With the planned upgrade of Route 101 much of the 500 trips, which reflect cut-through traffic, would be drawn away from the town center. As a result, the town center, with the upgrade of Route 101 and with the overpass, is expected to experience a substantial reduction in traffic.

As for any potential impact on the Nashua Road/County Road neighborhood, it is important to recognize that the 125 vehicle-trips that would be using the overpass during the peak hour are not new trips to Nashua Road or to the nearby streets such as County Road. In fact, during the PM peak hour, Nashua Road currently processes approximately 250 vehicle-trips. Limiting the direct access to Route 101 at Nashua Road to right turns in and out will help to reduce traffic on Nashua Road. Provided these right turns will further limit traffic entering the town center via the overpass.

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### *Other Impacts and Property Requirements*

Moving the proposed connector as far north as possible would eliminate impacts on the Kennedy Drive neighborhood such as traffic noise. Relocating the connector would also avoid intrusion into the wooded open space which is an important concern expressed by many of the residents who spoke at the May 2002 public meeting. The exact location of the connector road would require the detailed survey information that would be prepared during preliminary engineering design. Wetlands exist in the area behind the commercial properties near Wallace Road, so wetland impacts would be an important consideration in the design, and a permitting process would be required. Limited wetland impacts may also be associated with the modification of business access along the north end of the overpass. Sensitive engineering design can minimize these impacts.

Property will be required for both the overpass and connector. For the overpass, an area of several acres would be needed on the southeast corner of the overpass crossing, and a small area of land along the northern portion of the overpass would also be required. Access for the businesses in the northwest corner of the crossing would be modified but maintained for all buildings, and the overpass would rejoin Bell Hill Road at the North Amherst Road intersection.

As discussed in the section below on pedestrians and bicycles, the overpass will provide a major link for these users and a potential connection to the town-owned open space north of Route 101.

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### *Evaluation*

Timing	Short-range: within 5 years
Benefits	<ul style="list-style-type: none"><li>-Reconnects town center for pedestrians, bicycles, and local vehicles with handsome “gateway” bridge.</li><li>-Removes substandard intersection of Nashua/Bell Hill/Rte 101 and redirects Nashua Rd traffic to Wallace Rd signalized intersection.</li></ul>
Impacts	<ul style="list-style-type: none"><li>-Limited wetland impacts for connector road.</li><li>-Introduces traffic through undeveloped area between Wallace and Nashua.</li><li>-Regrading of hillside southeast of crossing.</li></ul>
Takings	<ul style="list-style-type: none"><li>-Vacant land southwest of current intersection.</li><li>-New right-of way for 2-lane connector road. No building takings anticipated.</li><li>-Reconfigures access to businesses on Bell Hill Rd.</li></ul>
Access Management	Improves access management by eliminating substandard intersection and directing traffic to signalized intersection on Rte 101.
Cost	\$4.5 million
Comments	Essential to reconnect town center. Both overpass and connector are necessary parts of this action. Right turn only access to and from Route 101 should be provided at Nashua Road.

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## 5.5 Pedestrian and Bicycle Transportation

The accompanying figures identify primary and secondary pedestrian and bicycle routes in the town center.

### *Pedestrian Routes*

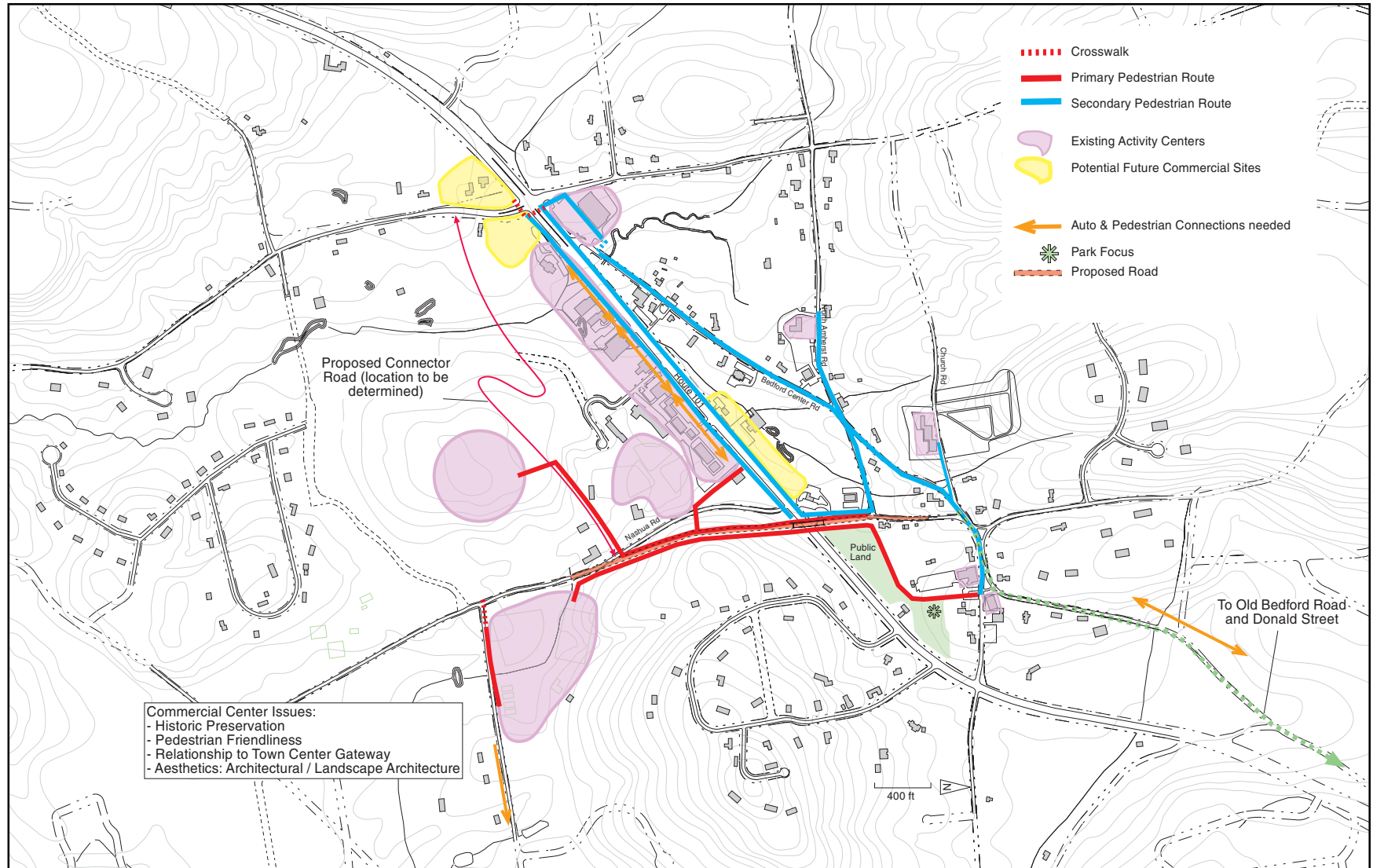
Primary pedestrian routes follow the strong desire lines between uses and help to re-connect the town center via the Nashua Road overpass. These primary routes should have sidewalks or off-road paths for their entire length.

South of Route 101 this primary route should connect to the commercial area along Route 101. A path meeting ADA requirements for wheelchairs was studied and found to be feasible. The sidewalks on the overpass should continue to the Town recreation facilities at the corner of County Road. The Town may want to consider extending this sidewalk along County Road to the McKelvie School and providing a sidewalk extension west of Nashua Road if a high school is eventually constructed there.

On the north side of Route 101, the primary pedestrian route should extend to the library. Because the Town owns a tract of land extending east from Bell Hill Road and abutting the library property, it is recommended that a shared pedestrian/bicycle path be constructed along the edge of this parcel on high ground above the wetlands. The path could connect through the library parking lot in a number of ways. Alternate routes through the land between Bell Hill Road and the library were also discussed by the Route 101 Advisory Committee.

Secondary routes may or may not require sidewalks. It is recommended that sidewalks be installed on both sides when Route 101 is improved in the town center. In the future, as the center becomes more pedestrian-oriented, these may become primary routes. It is also strongly recommended that the Wallace Road intersection should have pedestrian crosswalks on all four approaches with a pedestrian-activated walk signal. These crossings will be necessary, as the Nashua Road overpass is too far east to serve businesses at the Wallace Road end of the commercial center which may receive

Principal pedestrian routes connect the Library and Town Hall with shopping and recreation. Sidewalks are not added to historic town center roads.



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additional commercial development in the future.

In the historic town center, many of the streets will also be secondary pedestrian routes. After discussion with the Advisory Committee, it was concluded that there is a strong preference for as little change in the historic center as possible, therefore, these secondary routes need not be retrofitted with sidewalks, although caution signage to alert drivers to the presence of pedestrians should be considered. If the town should reconsider this issue in the future, Amherst village illustrates ways to place sidewalks in a historic context.

Outside the town center, the presence or absence of sidewalks should be considered during the design process for each intersection and roadway segment. In the section on Landscape Guidelines, it is recommended that a location should be reserved for sidewalks, even if they are not initially installed. Although few people would walk the length of the Route 101 Corridor in Bedford, local connections might be served by sidewalks along the highway, for example between Freedom Way and Elk Drive. Outside the Route 101 Corridor, the Town may wish to consider sidewalk improvements along Old Bedford Road near the Memorial Elementary School and on key pedestrian routes in the neighborhood between Donald Street and Boynton Street.

### ***Bicycles***

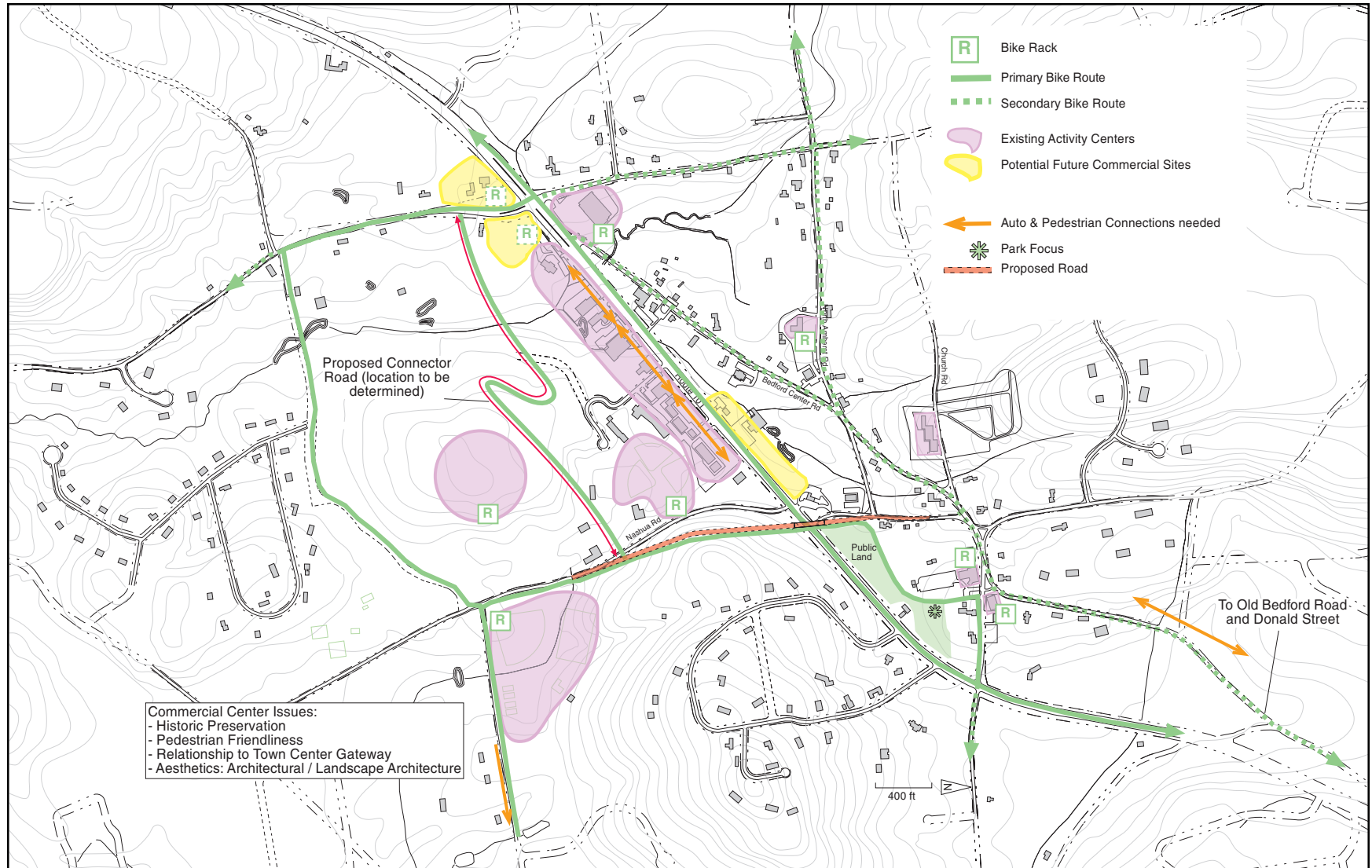
In the town center, a primary bicycle route follows the Nashua Road overpass to connect the recreation facilities and shopping south of Route 101 with the library and other civic uses in the historic town center. This off-road spine route could be extended along County Road to the McKelvie School either with or without the addition of an off-road path within the right-of-way. Signage should warn drivers of the presence of bicycles and the need to share the road. On-road bicycle routes are appropriate for experienced cyclists, who use them today and would benefit from a bike route designation. At the north end of the overpass, a shared pedestrian bicycle path could connect to the library, as described above in the section on pedestrian routes.

Although not part of the official network of New Hampshire bike routes, Route 101 is itself a bicycle route for experienced cyclists, and the recommended roadway cross-sections include a con-



*Most of Donald Street Lacks Sidewalks  
(photo by Ryk Bullock)*

Principal bike routes connect uses in the town center. New roads have wide lanes shared by bikes and cars. Signage encourages sharing the road.



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tinuous 5-foot shoulder that is suitable for such cyclists. Members of the public have expressed the vision of being able to bicycle around the town center and from the center to the neighborhoods east of Route 114. In the town center, secondary bicycle routes would follow the streets of the historic center. North Amherst Street provides a route to Amherst.

South of Route 101, people already use the old Class VI extension of County road for walking and bicycling, and this road could be designated as a bike route and improved as a shared use pedestrian/bicycle path. The proposed connector road behind the businesses along Route 101 would also serve as a link in the network of town center bike routes.

East of the town center, Bedford Center Road provides a bicycling (and walking) route to the area east of Route 114. A shared use path already exists in front of the Bedford Village Inn. Bicycles could then follow Village Inn Lane to Old Bedford Road, which overpasses Route 114 to connect with Donald Street. For all on-road bicycle routes, bike route designation by the town and placement of “share the road” signs is recommended.

In other portions of the Route 101 Corridor, sidewalks can provide an off-road option for bicycles, and this function should be considered when improvements to segments of the highway are designed. A continuous off-road bicycle path was considered, but it was concluded that this would not fit within the 100-foot right-of way.

## 5.6 Local Street Improvements

Although this study focuses on the Route 101 corridor, there are some actions that can be taken on local roadways away from the corridor that would serve to complement the corridor plan. The corridor plan is designed to encourage motorists to use Route 101 and to discourage motorists from using local residential neighborhood streets as convenient but disruptive cut-through routes.

The plan encourages the use of Route 101 by providing safer and more efficient access to the corridor and by reducing delay and congestion on the highway. Actions such as the following all encourage motorists to use the corridor and discourage cut-through traffic:



*Boynton St. and Plummer Road - photo by Ryk Bullock*



*Route 101 at Beaver Lane. Difficult left turns from stretch like Beaver Lane will be replaced by right turns to the turn-around at Joppa Hill Road (photo by Karen Grimmett)*



*Meetinghouse Road*

- upgrading the through-capacity at the existing signalized intersections of Route 114/Boynton Street, Old Bedford Road/Constitution Drive, and at Meetinghouse Road;
- providing a double left-turn lane on the Wallace Road southbound approach to the intersection with Route 101;
- providing traffic signals at the Joppa Hill Road/Stowell Road and Hardy Road/Jenkins Road intersections; and
- maintaining the single lane approaches on Meetinghouse Road at the Route 101 intersection and using signal phasing to limit green time on this cut-through route.

To further discourage cut-through traffic in the town center and along existing cut-through routes such as County Road and Meetinghouse Road, the town may want to consider introducing some “traffic calming” measures. These are actions that discourage high speeds and provide more orderly and safer operations at unsignalized intersections.

In the town center, motorists use the narrow historic roadways as a short-cut and travel at relatively high speeds because the alignments of the roadways encourage this type of behavior. North Amherst Road at the intersection of Bedford Center Road could be reconfigured so that North Amherst Road intersects Bedford Center Road at a “T-type” intersection. North Amherst Road could also be placed under stop sign control. Ministerial Road could also be reconfigured at the intersection with Bedford Center Road so as to reduce the wide pavement area at the intersection. These actions can be put in place while at the same time being sensitive to the character of the historic town center. Relocations would occur only at the intersections. Pavement would be reduced in extent and landscaped triangles added at skew intersections. These actions were briefly discussed with the Route 101 Advisory Committee and did not reach consensus, primarily because of concerns about adversely affecting the appearance of this historic area. However, they may be worth a closer look with the benefit of conceptual design drawings to illustrate the appearance of the town center if they were to be implemented.

Other actions worth consideration would be the placement of roundabouts at the County Road/Liberty Hill Road/Gault Road intersection and at the Meetinghouse Road/Patten Road/Gault Road intersection. Roundabouts (which should not be confused with much larger rotaries and traffic

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circles) would serve to reduce travel speeds along County Road and along Meetinghouse Road and may discourage some motorists from using these routes as an alternative route to Route 101.

Finally, a large volume of traffic filters through the narrow streets of the residential neighborhood east of Route 114 between Donald and Boynton Streets. Cut-through would be reduced by the improvement of the Route 114/101 intersection, but some movements, such as those via Palomino Lane are independent of conditions on the Route 101 corridor. This is a complex issue beyond the scope of the Route 101 Corridor Study but could be addressed in a separate study to identify a systematic set of actions that would reduce speeds and discourage cutting through this neighborhood.

These actions would be beneficial today, with or without the Route 101 Corridor improvements.

## 5.7 Rejected Concepts

### 5.7.1 *Why a Bypass is Not the Answer*

Confronted with the current problems on Route 101 and projections of increasing traffic, many people have asked, “Why not build a bypass route designed to carry this traffic and located south of Bedford?” There are a number of reasons why this is not the answer.

- A bypass would be strongly opposed by the “receiving” communities. Merrimack and Amherst are on record against it. The Nashua Regional Planning Commission opposes it. New Hampshire DOT would not support it without this local support. Chances of funding even a feasibility study are therefore very low.
- Even if the study process were to begin, there are several lengthy (and costly) steps toward a project of this size and type: feasibility study, environmental study, listing in the state long-range plan, funding of design, design, funding of construction, and construction. Experience with other projects indicates that the time to completion could be 20 years or longer.
- The problems facing Route 101 in Bedford will be at a critical stage long before a bypass could be ready.
- A bypass would cost more than \$80 million and funding is unlikely without strong support from

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communities and regional planning agencies.

### ***5.7.2 Town Center Grade Separation***

It was proposed that Route 101 be depressed in an open cut with surface streets running parallel on each side and crossing over the highway on grade-level bridges; a deck over the highway was also considered. While this option has several advantages such as providing north-south connections throughout the commercial center and separating local traffic from through traffic, it proved to be both very large in its footprint, and very costly to build, probably in excess of \$20 million. Rather than improving the commercial center, a depressed roadway would take so much land as to make it impossible for existing businesses to operate, and the entire system of roads would be out-of-scale with its surroundings and unattractive.

### ***5.7.3 Interchanges***

As discussed above, the plan recommends improved signalized intersections where major collector streets enter the highway. During discussions with the Advisory Committee, interchanges with overpasses were considered for Meetinghouse Road, Nashua Road, Hardy/Jenkins Roads, and Joppa Hill/Stowell Roads. In each case, these options were rejected in favor of signalized intersections. In general, interchanges with overpasses would:

- control entry and exit of traffic from the highway,
- provide a means to reverse direction, and
- provide connections over the highway for vehicles, pedestrians, and bicycles.

Against these benefits, two major negative factors were weighed:

- Interchanges, even in the most efficient design would have large footprints which would impact a large area, change character, and require wetlands and/or businesses to be taken.
- Interchanges would also be more consistent with a higher speed highway rather than a developed residential area with side streets and businesses along the roadway.

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(While interchanges are also more expensive than intersections, this consideration was not a major factor in the deliberations.)

This decision was more clear-cut for locations like Meetinghouse Road, which has both wetlands and a sensitive historic context. It was a closer decision at Joppa Hill Road, where there is open land but also nearby neighborhoods. In the end, improved intersections with traffic signals were selected for all locations except Nashua Road, where an overpass without access ramps is recommended. These recommended concepts are discussed in detail in the sections above.

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## 6.0 Recommendations

### 6.1 Overview of the Corridor Plan

*(See figure 7.1 for a map of the implementation priorities.)*

The Route 101 Corridor Plan for Bedford follows the strategy described in the previous section of this report. At its completion, Route 101 will have two travel lanes in each direction from Route 114 to the Amherst town line, with a curbed central median focusing left turns at key locations. Except at these locations, turns from side streets and driveways should be right-turn-in and right-turn-out only. At some left turn locations, outbound left turns onto the highway may be necessary, but at most locations, these outbound left turns should not be permitted by the design for safety.

Traffic from most of the town will enter and leave the highway at a series of improved signalized intersections with center turn lanes and two travel lanes on Route 101 in each direction. Signals should be phased to discourage short-cutting through neighborhoods while serving local access needs. The bottleneck west of the Route 114 intersection will be relieved in the short term by extending the merge of the two westbound lanes beyond the Constitution Drive intersection. In the longer term, the 114 intersection should be reconstructed as a two-level intersection, providing excellent traffic operations.

An attractive local overpass for pedestrians, bicycles, and local traffic will be provided at Nashua Road. This proposal includes closure of the poor existing intersection and provision of a 2-lane connector road from Nashua Road to Wallace Road to serve Nashua Road traffic. These proposals were the subject of considerable comment at the public presentation of the draft plan in May 2002. As described in the previous section where this recommendation was discussed in detail, these comments led to the relocation of the recommended connector to an alignment just behind the commercial sites on Route 101, avoiding neighborhood and open space impacts.

Landscaping along the highway will be improved, and guidelines for commercial development are proposed to improve quality and aesthetics and to strengthen the town center.

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In summary, the Corridor Plan will:

- Improve traffic flow and reduce traffic short-cutting through the town center and other neighborhoods.
- Greatly improve safety, although at the cost of some inconvenience for some people.
- Reconnect and strengthen the town center.
- Improve aesthetics and the quality of commercial development along Route 101.
- Require relatively little land not already in the highway right-of-way and have only limited impacts to the natural environment.

Detailed descriptions of the roadway improvements are located in the previous section. Guidelines are described below.



*A landscaped Wallace Road intersection*



*Approaching Wallace Road from the west*

## 6.2 Design Guidelines

The Corridor Plan contains two types of guidelines: for public improvements and for development in commercial zones along Route 101. Development guidelines address landscaping and site placement as well as architecture, lighting, and signage. The guidelines for roadway improvements should be incorporated into the engineering design. Development guidelines should be adopted and implemented by the town in its development review process.

### 6.2.1 Landscaping for Public Improvements

The public realm- highways, bridges, public facilities- comprises much of what we see when outside our homes and workplaces. The improvements that are made within the Route 101 highway right-of-way (generally 100 feet wide) have an enormous effect on how the Town of Bedford is perceived and the quality of the daily visual experience of both Bedford residents and people passing through town.

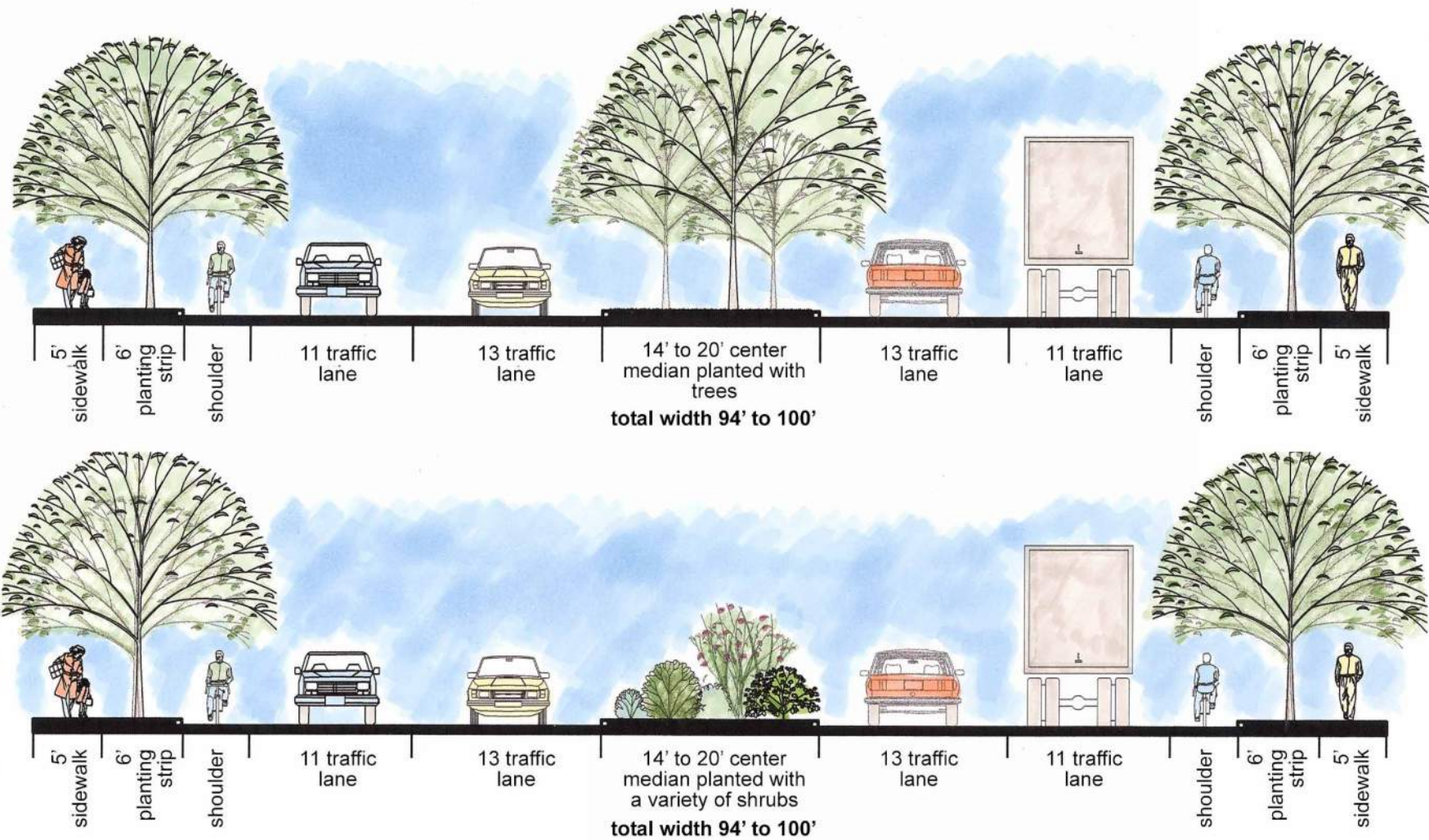
The following recommendations and illustrations of cross-sections and intersection treatment are intended to be used by the designers of the roadway improvements recommended in the Corridor Plan.

1. All highway segment and intersection improvements should be well landscaped. Typical cross-sections are shown in the illustration, which is part of these guidelines.
2. A planting strip should be located in on each side of the highway with street trees and grass cover.
3. The raised central median should contain grass, shrubs, and trees, with trees particularly important in the boulevard section. Shrubs should be planted in masses large enough for a highway scale environment. Trees should be high-branching varieties with height suited to the presence or absence of overhead utility lines. All materials should be low maintenance, salt-tolerant varieties suitable for Bedford's climate (hardiness zone 5). Refer to the list of recommended plant materials.
4. Intersections should be well-landscaped with similar materials selected and arranged to maintain vehicular sight lines. Pedestrian crossings should not be precluded by the placement of plant materials.

5. Medians should not be capped with Portland or bituminous concrete except for small areas intended to be mounted and crossed by emergency vehicles.
6. Trees should preferably be 3 to 3.5 inches in caliper when planted, and should be warranted by the contractor for one year.
7. Where right-of-way constraints exist, the width of the median can be adjusted. If the planting strip on each side of the highway is less than 6 feet wide, trees are not recommended.
8. Room in the cross section should be left for a 5-foot sidewalk on each side, even if not installed initially. The sidewalk should be separated from the curb by the planting strip, not adjacent to the curb. Bituminous or Portland cement concrete on a foundation meeting NHDOT standard specifications should be used where the sidewalk is expected to receive frequent use. Compacted stone dust meeting ADA criteria can be substituted in areas receiving less use.
9. Utility poles are preferably located outboard of the sidewalk rather than in the planting strip next to the road. If easements from abutting properties are an option, it may be preferable to place utilities in an easement rather than the sidewalk for reasons of liability.
10. Maintenance responsibilities should be discussed with New Hampshire DOT prior to finalizing the design.



*Approaching the improved Meetinghouse Rd. intersection*



## Plant Material for Bedford, New Hampshire Route 101 Corridor Study

6' wide planting strip along edge of roadway

Medium sized Trees (do not conflict with overhead utility wires)

Imperial Honeylocust - *Gleditsia triacanthos* 'Impcole'

American Hornbeam - *Carpinus caroliniana* (tree form)

Columnar Sargent Cherry – *Prunus sargentii* 'Columnaris'

Macho Amur Corktree – *Phellodendron amurense* 'Macho'

Regent Japanese Tree Lilac - *Syringa reticulata*

Japanese Black Pine – *Pinus thunbergiana*

Pitch Pine – *Pinus rigida*

Western Red Cedar – *Juniperus virginiana*

Groundcover – grass seed mix. Blend of Fescue, Kentucky Bluegrass and Ryegrass

14' to 26' wide planted roadway median

Shade or Stand-Alone Trees

Shademaster Honeylocust - *Gleditsia triacanthos* 'Shademaster'

Red Maple 'Red Sunset' – *Acer rubrum* 'Red Sunset' (20' wide median)

Red Maple 'Armstrong' – *Acer rubrum* 'Armstrong' (14' wide median)

Littleleaf Linden – *Tilia cordata*

Skymaster English Oak – *Quercus robur* 'Pyramich'

Scotch Pine – *Pinus sylvestris*

Austrian Pine – *Pinus nigra*

Eastern White Pine – *Pinus strobus* (for locations not directly exposed to road salt)

Flowering Trees

Regent Japanese Tree Lilac - *Syringa reticulata* (20' wide median)

Amelanchier x graniflora 'Autumn Brilliance' - *Autumn Brilliance Serviceberry* (20' wide median – tree form)

Cleveland Select Pear – *Pyrus calleryana* 'Chanticleer' (20' and 14' wide median)

Columnar Sargent Cherry – *Prunus sargentii* 'Columnaris' (20' and 14' wide median)

Crimson Cloud English Hawthorn – *Crataegus laevigata* 'Superba' (thornless tree form)

Shrubs

Rugosa Rose - *Rosa rugosa*

Fragrant Sumac - *Rhus aromatica*

Mugo Pine 'Mugo' - *Pinus mugo* 'mugo'

Chinese Juniper 'Hetzii' - *Juniperus chinensis* 'hetzii'

Winged Euonymus 'Rudy Haag' - *Euonymus alatus* 'rudy haag'

Dwarf Fothergilla - *Fothergilla gardenii*

Mugo Pine – *Pinus mugo*

Large Fothergilla - *Fothergilla major*

Groundcover – grass seed mix. Blend of Fescue, Kentucky Bluegrass and Ryegrass



*Landscaping guidelines will improve the commercial district on Route 101 (photo by Jayne Spaulding)*

### ***6.2.2 Landscaping and Site Layout for Commercial Development***

More than any other factors outside the public realm of the highway right-of-way, site layout and landscaping profoundly affect the aesthetic appearance and sense of place in the Route 101 Corridor. The town's review of these factors through its Land Development Control Regulations has been thorough, and commercial development along Route 101 has been of good quality. However, the Route 101 Corridor Plan recommends some changes that will help to strengthen and upgrade the appearance of the commercial center and make it a more pedestrian-oriented place. Thus, one set of guidelines is recommended for the commercial areas between Meetinghouse Road and Wallace Road (i.e., the highway commercial zone east of Bell Hill Road and the commercial district west of Nashua/Bell Hill Roads, including also the commercial parcel on the southwest corner of Wallace Road and Route 101 which is in the Town Center Historic District). A slightly different set of guidelines is recommended for the commercial and highway commercial districts west of the Wallace Road corner parcel. The two sets of guidelines help to create a special identity for the town center commercial district.

In the town center, buildings would be located 30 feet behind the front property line, where a public sidewalk would be located, and no parking lots would be allowed in front of buildings. Walkways would connect the public sidewalk with building entrances. The front area would be landscaped, complementing the street trees in the public right-of-way. Parking lots would be broken into small increments with internal landscaping, and the property lines abutting residential zones would be well buffered. The overall effect would be that of a central place in the town rather than a highway-oriented commercial strip. Boulevard landscaping and pedestrian connections via the Nashua Street overpass would further strengthen this commercial center. Changes to the commercial character of the center would take time to occur as individual parcels are redeveloped. These guidelines are particularly important for the commercially zoned parcels at the corner of Wallace Road, the gateway to the commercial center; large parking lots in front of commercial development at this corner would significantly detract from the appearance of the center and work against the objective of making the town center more cohesive and less highway oriented.

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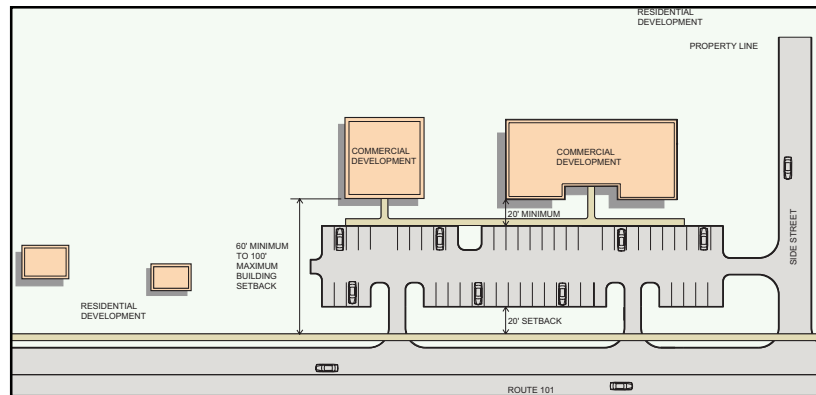
West of the Wallace Road parcels, more highway-oriented commercial development would be appropriate, if properly laid out and landscaped. The guidelines for this area permit parking in front of buildings, but have a maximum setback of buildings that insure that parking lots are relatively small (a setback of 60 to 120 feet permits one or two rows of parking plus landscaping along the highway and in front of the building). Alternatively, parking lot size could be explicitly limited to two rows or less, rather than using maximum setbacks for this purpose. These guidelines also provide for a well landscaped area between the public right-of-way and the parking lots to provide screening and maintain the “green wall” that is typical of the Route 101 corridor. It should be noted that the frontage buffer need not be opaque- “filtered” views of the building between trees or under tree crowns are in fact desirable.

Shared access between adjacent parcels is encouraged in both the commercial center and in commercial areas west of Wallace Road.

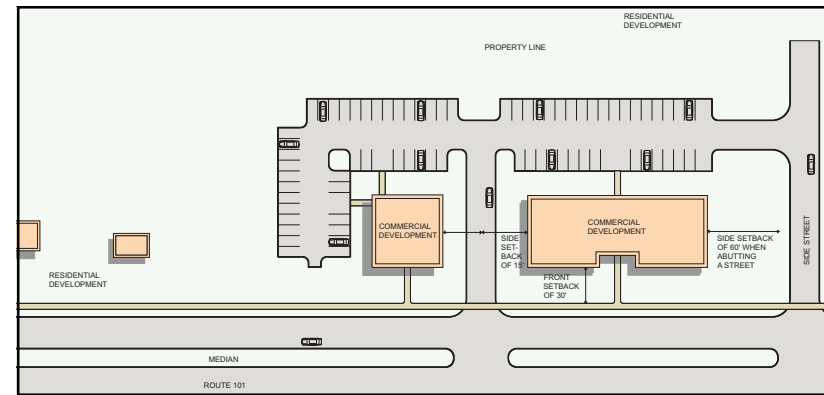
The following table states the guidelines for both areas, and the accompanying diagrams illustrate the guidelines. The guidelines are specific but not overly so, in order that developers have the flexibility to provide creative landscape designs within the framework of the guidelines.



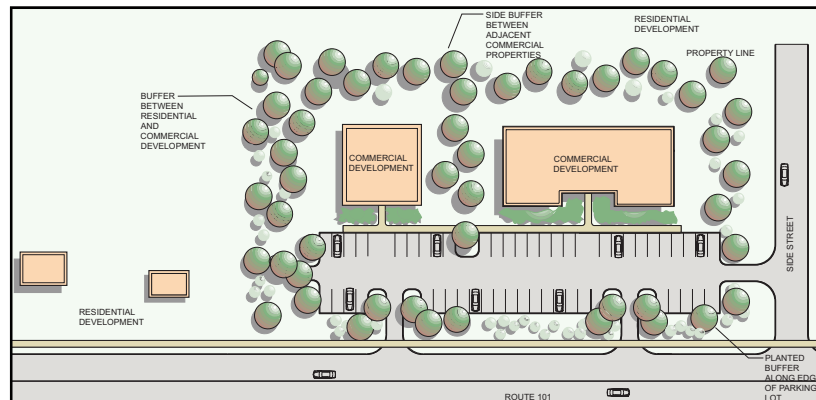
*Pine Tree Place (photo by Jayne Spaulding)*



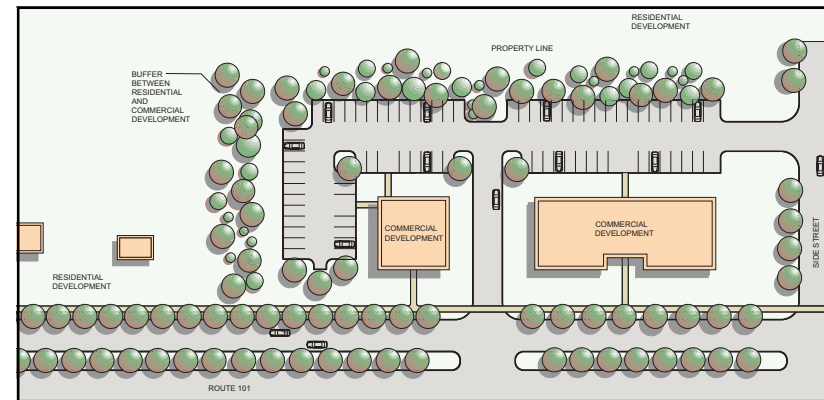
*West of Wallace Road setbacks allow small parking lots.*



*In the town center, parking is behind and between buildings.*



*Landscaping helps to preserve rural appearance.*



*Landscaping on boulevard is more pedestrian-oriented and encourages lower traffic speeds.*

## Guidelines for Commercial Development in the Route 101 Corridor

### Site Layout Guidelines

	Setbacks	Vehicular Access	Pedestrian Access	Parking Lot Layout
<b>TOWN CENTER</b> (Meetinghouse Road to Historic District boundary west of Wallace Road)	Building setback 30' Minimum 50' Maximum Parking lot setback at least to building line.	Corner properties provide access via side streets. Adjacent parcels share curb cuts if possible. No vehicular access or parking in front of buildings.	Maintain sidewalk material over curb cut or mark pedestrian crossing. Provide sidewalks from Route 101 to building entrance	Place parking to the side of and behind buildings. Create smaller inter-connected parking lots. Minimize curb cuts.
<b>WEST OF WALLACE ROAD</b> (beginning at Historic District boundary)	Building setback 75' Minimum 100' Maximum Parking lot setback 20'	Corner properties provide access via side streets. Adjacent parcels share curb cuts if possible. Parking and vehicular access may be placed in front of buildings.	Provide access from parking lots to building entrance.	Create smaller inter-connected parking lots. Minimize curb cuts.

### Site Landscaping Guidelines

	Buffers	Parking Lot Landscaping	Building Landscaping	Plant Materials
<b>TOWN CENTER</b> (Meetinghouse Road to Historic District boundary west of Wallace Road)	Street tree plantings along Route 101 and side streets for corner properties Buffer per existing zoning between residential and commercial properties 15' planted buffer along edge of parking lots	Minimum of 5% of parking lot should be landscaped Include planted medians when there are more than 4 rows of parking	Building landscaping to reinforce and guide pedestrian travel	Use healthy native plants appropriate for climate and highway conditions Density of planting in buffers should be sufficient to provide appropriate level of screening. Trees should be of minimum 3 to 3.5 inch caliper when installed.
<b>WEST OF WALLACE ROAD</b> (beginning at Historic District boundary)	12' planted buffer along front of property to provide partial screening of parking lot Buffer per existing zoning between residential and commercial properties 15' planted buffer along edge of parking lots Planted side buffer between properties height of tallest building	Minimum of 5% of parking lot should be landscaped Include planted medians when there are more than 4 rows of parking	Building landscaping to reinforce and guide pedestrian travel	Use healthy native plants appropriate for climate and highway conditions. Density of planting in buffers should be sufficient to provide appropriate level of screening. Trees should be of minimum 3 to 3.5 inch caliper when installed.

### 6.2.2 Commercial Architectural and Signage Guidelines

The following guidelines are proposed for consideration by the Town of Bedford in reviewing commercial development within the Route 101 Corridor. The following section of this report discusses how the guidelines can be integrated with Bedford's zoning and site development review process.<sup>4</sup>

#### 1. Building Context

##### 1.1 Relationship between project building and site.

- The **primary front** of the project building should be oriented parallel or perpendicular to the street, rather than at a skewed angle.
- There should be **coordinated transitions and connections** between building elements (entrances, loading docks, etc.) and site elements (parking, landscaping, etc.)

##### 1.2 Relationship of project building to adjacent buildings

- **Driving and walking connections** between similar uses on adjacent parcels should be provided wherever possible.
- Building style, scale and massing should be **compatible** with, enhance, and complement the surrounding buildings.

#### 2. Architectural Design

##### 2.1 Massing

- The **overall form** of the building, such as height, roof pitch, length of building front should be similar to the majority of surrounding buildings if possible, in order to maintain a consistent "grain" of buildings. This will aid in visually unifying the architecture and in decreasing the sense of clutter and cacophony often associated with contemporary commercial developments along highways.
- Building massing should be **divided and articulated** into smaller elements to relate to pedestrian scale (see below).

##### 2.2 Fronts and Entries

- There should be a clear definition of the **main faces** of buildings and entrances to orient the user coming from Route 101 and moving within the site.
- Primary building faces need not be confined to a single side of a building;



*Buildings should give definition and order to the street by having consistent and manageable massing that aligns with the main road as well as coordinated transitions and connections between buildings.*

<sup>4</sup>Note: some material from the NRPC *Design Guidelines for Commercial Development* has been adapted or incorporated into the above guidelines.

building entrances should be strategically located in order to serve the users walking to the building both from the sidewalk along Route 101 and from on-site parking areas.

### 2.3 Scale

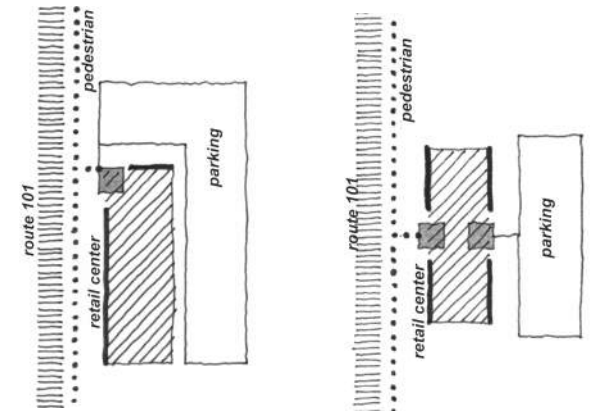
- The scale of new development should relate to the pedestrian. The parts of the building should be scaled to **relate to pedestrian scale**.
- Scale should be controlled by **dividing the massing** of the building through design techniques such as step-backs of the facade and the **delineation and repetition of building elements** (e.g. roof pitches, windows, doors, etc.). For example: two buildings can be the same size, but if one building has many small windows and another has one large window, the scale is dissimilar.
- In terms of scale, all new buildings should express continuity and consistency with their surroundings.

### 2.4 Materials and Color

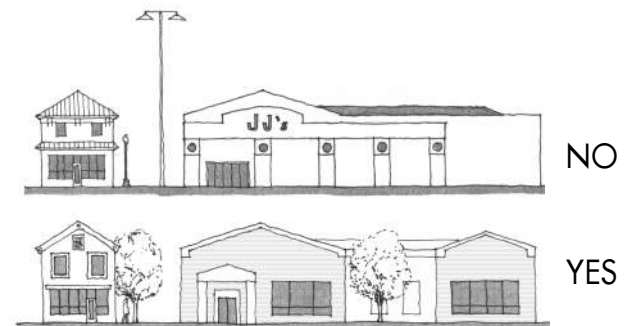
- Appropriate **traditional materials** of high quality are preferred and can include clapboard siding, brick, stone, wood shingles or shakes.
- **Contemporary/manufactured materials** may be used if they express the scale, texture and character of traditional materials without being easily identified as imitations. For example: Aluminum or vinyl siding is an acceptable substitute for pure wood clapboard siding only if trim and window frames are retained or expressed in the new material; various fiber-cement or engineered wood siding alternatives may be acceptable.
- For projects in the **Historic District**, all relevant regulations of the Historic District Commission will apply. In cases of apparent conflict, the Historic District regulations take precedence over these guidelines.
- Colors of paint and other exterior materials should be coordinated and should be consistent and compatible with colors used elsewhere in the Route 101 Corridor and the Town Center Historic District.

### 2.5 Style

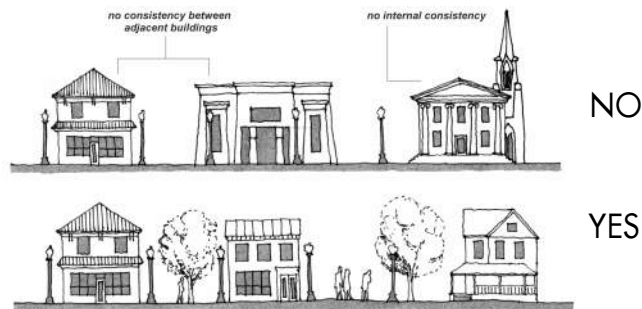
- All architectural designs should be **compatible with the historic character** of the town. Contemporary design is acceptable if the project complements the size,



*Building fronts and entries should enhance orientation and accessibility from the street and from parking areas.*



*Buildings should have a human scale. This can be achieved by breaking down the massing of large buildings, and controlling the delineation and repetition of building elements (such as windows and doors) so that they relate to pedestrians.*



All architectural designs should be compatible with the historic character of the town. Historic styles don't have to be copied, but if they are they should accurately represent that style and not mix styles.



Glare from the road and undesirable incidental illumination of adjoining properties should be prevented. All light fixtures should be shielded and designed to direct light downward.

scale, material, and historic character of the surrounding structures.

- **Historic styles** need not be copied, but projects designed in a historic style should accurately represent that style and not mix styles. For example: buildings should not combine a Greek Revival portico with a mansard roof.
- Building **renovations** should not destroy historically significant artifacts.

#### 2.6 Details

- All windows and doors should be in **proportion** to the facade of the building as whole.
- Trim work around windows and doors should be of high quality and **appropriate** to the architecture of the building as a whole.
- Details should be appropriate to the overall style of the building.

#### 2.7 Permissible Setback Encroachments

- Awnings, porticoes, patios, porches, etc., **can project** beyond the required setback towards the street.
- The size and shape of the projecting building element should be in **scale** and in proportion with the entire building.

### 3. Lighting Design

#### 3.1 Lighting Style and Size

- Lighting fixtures should be in **proportion** to the architecture and consistent with a pedestrian oriented **scale**.
- The **style** of lighting fixture should be consistent throughout the site and complement the style of the architecture.
- Architectural lighting should **enhance** the character of the building.

#### 3.2 Lighting Impacts (Performance zone provisions from section 45-9-14 may be added.)

- Light fixtures should be positioned and directed to **prevent undesirable incidental illumination** of abutting properties, the street and the nighttime sky.
- All light fixtures should be **shielded** and designed to **direct light downward**.
- **Lighting** should be consistent with the character and intensity of adjacent developed properties.
- Parking lot and security lighting should not exceed a maximum of fifteen (15)

feet in height, including lamp, pole, and base for sites within 200 feet of residential uses, and a maximum of twenty five (25) feet in height otherwise. (NRPC)

3.3 Site Illumination (Performance zone provisions from section 45-9-14 may be substituted.)

- Lighting design should achieve the following light **intensity levels** at ground level:
- Parking lots: 2 foot-candles.
- Vehicular entrances and intersections: 5 foot-candles.
- Sidewalks and plazas outside the business: 1 foot-candle. Lower light levels may be used for outside dining areas.

#### 4. Signage Design

4.1 All signs shall conform to the regulations outlined in the Bedford Zoning Ordinance and the Historic District Commission Regulations

##### 4.2 Advertising

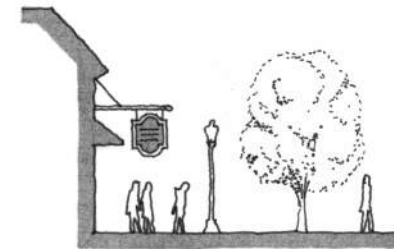
- **No billboards** are permitted.
- **Franchise business signs** should conform to all standards of these guidelines.
- Advertising on exterior signage is not permitted. However, window displays scaled and directed at customers entering the building (e.g., supermarket special offering) are permitted.

##### 4.3 Style and Design

- Signs should **complement** the style, color, materials and scale of the building, and should be **integrated** with the architectural design.
- Typography, color, and design should be internally consistent.
- **Logos** and business identifying symbols are **permitted** within the constraints established by these signage guidelines.

##### 4.4 Sign Materials and Lighting

- Materials should be **compatible and consistent with** the specific building **architecture**.
- Signs **may not be internally illuminated** and may not contain mechanical **elements in motion**.
- External **light sources** for signs should be **shielded** from glare.



*Signs should complement the style, color, materials and scale of the building, and should be integrated with the architectural design.*

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#### 4.5 Ground Mounted Signs

- Only **one ground-mounted sign** is permitted for each business center.
- Signs should be in **scale** with the context.
- See landscape design guidelines as they relate to signage placement and landscaping.

#### 4.6 Building- Mounted Business Signs

- Signs identifying individual businesses or offices should be **integrated** into the building design and **limited in size** to thirty-two (32) square feet per sign and one sign per building face. Placement of building mounted signs should be consistent with directly adjacent businesses if possible.
- Business signs should **not extend above the top edge** of the building front.

Note: some material from the NRPC [Design Guidelines for Commercial Development](#) has been adapted or incorporated into the above guidelines.

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### 6.3 Zoning and Development Review

The siting, landscaping and architectural guidelines for commercial buildings can be implemented with limited change to Bedford's Zoning Ordinance and Land Development Control Regulations (LDCR). One approach is to reference the guidelines in this report for zoning districts in the Route 101 Corridor; these guidelines would supplement the existing regulations except for a few provisions of LDCR Article 320, Design and Construction Standards. In these instances, the regulations can state that the Route 101 Corridor guidelines apply within the subject zoning districts. An alternative is to encode the Route 101 Guidelines as one or more subsections of the existing Article 320. A new subsection for architectural review could be added in this manner.

The zoning amendments required to implement the Route 101 guidelines are as follows:

- Revise the setback requirements for the Commercial and Highway Commercial Districts by adding footnotes applicable to such districts within the Bedford Center Historic District and stating that the required building setback is 30 feet minimum [compared to 60 feet at present] and 50 feet maximum, with no parking or vehicular access in the required front yard. [No change in the current 30-foot setback is necessary for parking lots located to the side of the building.]
- For Commercial and Highway Commercial districts with frontage on Route 101 west of the Historic District, revise the required building setback to 75 feet minimum and 100 feet maximum. [These setbacks accommodate a single or double row of parking in front of the building with a parking lot set back of 20 feet from the property line, as recommended, and a planting strip and sidewalk between the building and parking.]
- For commercial and highway commercial districts on Route 101 west of the Historic District, the parking lot setback requirement in zoning section 45-10-1 would be amended to 20 feet with a vegetated buffer . [A 20-foot buffer is part of the recommended site layout guidelines for this area, but if the town wishes to keep the required parking setback at 30 feet, then the building setbacks for this area should become 85 feet minimum and 110 feet maximum.]

In addition, the Town may wish to consider tightening the use regulations for districts on Route 101 to avoid uses such as auto parts sales, a refinement consistent with the intent of the current use regulations. See the *Zoning Diagnostic and Future Options* in the Appendix to this report. Zoning

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recommendations which the town may wish to consider in the future include an overlay district for the Route 101 Corridor which limits the size of commercial buildings to perhaps 20,000 to 25,000 square feet of gross floor area with potential bonuses for exemplary design.



# **TOWN OF BEDFORD INFRASTRUCTURE MASTER PLAN (IMP)**

**Updated September 24, 2009**

**PURPOSE:** To identify Town Infrastructure Projects (which include roads, water/sewer needs, active and passive recreation, open space and town buildings) and to establish cost estimates and project priorities (Phase 1) in order to support Bedford's Capital Plan. Also, it is to propose an approach for developing a master schedule and review process for project funding and project development to implement the agreed to projects (Phase 2 [tbd])

**BACKGROUND:** There are areas within the Town of Bedford lacking infrastructure which, if addressed, would promote or enhance commercial growth and thus grow the commercial tax base. Additionally, there are town owned properties which require rehabilitation or replacement. Presently there is no detailed identification or candidate projects (Phase 1) or a defined process for developing schedules for and funding methodologies for project implementation (Phase 2).

A Building Sub-committee of the Council will review the town owned buildings and provide their assessment of those buildings for identification and need purposes. Effectively identifying and then addressing projects will contribute to the quality of life in the Town of Bedford. Note: New roads do not include any roads which are part of or associated with new residential or commercial developments and are the responsibility of the developer(s).

This document is intended to propose a process for project identification, project rationale and priority, project schedule and project funding. The end result is to be an overview Infrastructure Master Plan listing each project with all relevant information. The Infrastructure Master Plan is proposed to be used to help support the Capital Improvement Plan as a management and decision tool when considering infrastructure project implementation during and in conjunction with the Town of Bedford's budgeting process.

## **APPROACH**

1. Identify potential Infrastructure projects. Identify and support the necessity of each project in terms of Town benefit and/or necessity and needed date (if appropriate).
2. Identify each project's scope: Develop a preliminary concept and Rough Order of Magnitude (ROM) cost for each project.
3. Develop a preliminary project schedule
4. Prioritize projects considering necessity and schedule of need. Important in this is the Summary of the Council's Building Committee review of Town Owned Buildings.
5. Develop project funding options and process.
6. Update the document on an annual basis in order to keep it current.

- A. Town Staff will develop a candidate listing of infrastructure projects, project definition, and rationale and ROM costs. (Town Manager and Planning Department Director will oversee list development, information of which will come from Department Managers and the Council's Building Review Committee)
- B. The Town Manager and Planning Director will review the list with the Planning Board for input and comment. (The input and comment of each Board shall be identified separately.)
- C. Town Staff will then review the updated document with the Town Council and a final document will be produced. The staff will then update the document, review the updates with the Planning Board, and submit the updated document to the Town Council by the end of May of each year.

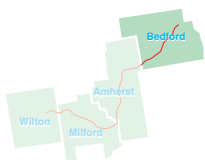
IMPLEMENTATION SCHEDULE (Phase 1):

- 1. The Town Staff shall provide a preliminary Infrastructure Master Document by the end of March, 2010
- 2. The Planning Board shall review the document and provide comments at one of their April, 2010 meetings
- 3. The Town Staff shall make any necessary changes and present the draft document for review and comment to the Town Council at their last monthly meeting in May, 2010. In addition, a proposed process for implementing the submitted document shall be included in the presentation (Phase 2).

The approved Infrastructure Master Plan shall be used in conjunction with the Town's Capital Improvement Plan in the determination of implementing any Town infrastructure project(s).

The current thought is to include the Infrastructure Master Plan (IMP) implementing process as part of the present Capital Improvement Plan review process after the present CIP process has been reviewed and updated. (Phase 2)

September 24, 2009



# Bedford Route 101 Corridor Study

## Appendices

July 2002



Wallace Floyd **Design** Group  
Vanasse Hangen Brustlin, Inc.  
RKG Associates, Inc.  
Community Planning Solutions

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Land Use and Economic Impacts of the Route 101 Conceptual Transportation Improvements, prepared by RKG Associates, Inc.

### *Appendix C*

Bedford Zoning - A Regulatory Diagnostic and Future Options, prepared by Community Planning Solutions

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## Appendix A

### Bedford Advisory Committee Meeting Notes

## Bedford Route 101 Advisory Committee Meeting Notes

June 14, 2001 Bedford Town Hall  
7:00 – 9:00 PM

KAREN WHITE, PLANNING DIRECTOR, OPENED THE MEETING BY WELCOMING EVERYONE AND THANKING ALL FOR TAKING AN ACTIVE ROLE ON THE COMMITTEE. KAREN THEN ASKED EACH OF THE ATTENDEES TO TAKE A MOMENT TO INTRODUCE THEMSELVES. KAREN AND MARTY KENNEDY (VHB) BRIEFING DISCUSSED THE PURPOSE OF THE STUDY AND THE STUDY METHODOLOGY. THE BALANCE OF THE MEETING WAS DEVOTED TO COMMENTS FROM THOSE ATTENDING ON ISSUES, CONCERNS, AND POSSIBLE SOLUTIONS TO BE CONSIDERED. COMMENTS RECORDED ARE SUMMARIZED BELOW. A RANGE OF OPINIONS WAS EXPRESSED. FACTS RAISED IN COMMENTS WILL BE CHECKED AS THE STUDY PROGRESSES.

- ANY POTENTIAL WIDENING OF THE CORRIDOR NEEDS TO CONSIDER THE IMPACT ON PROPERTIES WITH FRONTAGE ALONG THE CORRIDOR.
- TRAFFIC ON DONALD STREET HAS BEEN INCREASING RECENTLY.
- NEED TO CONSIDER NOISE IMPACTS OF TRAFFIC AND FROM TRUCKS.
- WE NEED THE SUPPORT OF OUR STATE REPRESENTATIVES – THEY SHOULD BE INVITED TO THESE PUBLIC MEETINGS.

- ADDING MORE LANES TO ROUTE 101 WILL ENCOURAGE MORE TRAFFIC. "BUILD IT AND THEY WILL COME."
- NEED TO PROVIDE PEDESTRIAN WALKWAYS AND BIKEWAYS CROSSING ROUTE 101.
- MUST THINK REGIONALLY. SHOULD BE LOOKING AT A BY-PASS.
- PLEASE PROVIDE EXAMPLES OF BOTH GOOD AND BAD CORRIDOR PLANNING EFFORTS.
- BE SURE TO LOOK AT HISTORICAL TRAFFIC GROWTH RATES.
- NEED TO PULL THE TOWN BACK TOGETHER. NEW CONNECTIONS ACROSS ROUTE 101 ARE CRITICAL. CHILDREN NEED TO BE ABLE TO GET TO RECREATIONAL AREAS.
- TOWN SHOULD CONSIDER BUYING UNDEVELOPED LOTS ALONG CORRIDOR TO LIMIT GROWTH.
- TOWN CENTER SHOULD BE PEDESTRIAN FRIENDLY. BOOK STORES, COFFEE SHOPS, ETC. CULTURAL CENTER.
- NEED TO HAVE AN ADDITIONAL BRIDGE CROSSING OVER THE MERRIMACK RIVER.

FOLLOWING THE COMMENTS KAREN ASKED EACH ADVISORY COMMITTEE MEMBER TO PREPARE A LIST OF ISSUES AND CONCERNS FROM THE NEIGHBORHOOD THAT THEY

REPRESENT. THE LIST SHOULD BE E-MAILED TO THE CONSULTANT. THE E-MAIL ADDRESSES OF EACH OF THE NEIGHBORHOOD REPRESENTATIVES WILL BE PUBLISHED IN THE NEWSPAPER SO THAT THEY CAN RECEIVE INPUT FROM THEIR NEIGHBORS.

## Visioning Workshop Notes

September 19, 2001

6:00 – 9:30 PM

Approximately 80 Bedford residents and business people attended the meeting, which was held at the historic Town Hall. Planning Director Karen White introduced the consultants hired to do the Route 101 Corridor Study. Jim Purdy, the project manager from Wallace Floyd Design Group, Skip Smallridge, principal urban designer at Wallace Floyd and Martin Kennedy, Assistant Project Manager from Vanasse Hangen Brustlin's Bedford office gave a brief presentation of analysis accomplished since the public meeting in May. The meeting then divided into two breakout groups, one on traffic and one on land use, aesthetics, and urban design. Jim Hicks, principal of RKG Associates, facilitated discussion in the traffic breakout session and in the last segment of the workshop in which everyone attending gathered to discuss the outcomes of the breakout sessions.

### SUMMARY:

- There was substantial interest in solving safety problems along Route 101 as soon as possible, including intersection improvements, traffic signals, and speed enforcement.
- A large number of those present felt that a bypass moving the majority of traffic out of the Corridor should be pursued even though this is a long range action with significant obstacles to overcome.

There was also interest in:

- reducing and managing congestion
- separating local access from through traffic
- overcoming the barrier effect of the highway
- providing safe pedestrian and bicycle connections between the major activity generators in the town center, as well as safe crossings in other parts of the corridor
- strengthening the town center without altering its historic core
- maintaining a tree-lined corridor with new development required to provide adequate landscaping and site design

### TRAFFIC/ROADWAY DESIGN/SAFETY BREAKOUT SESSION:

Below is a list of the various ideas suggested by individual citizen participants of the traffic/roadway/safety breakout session.

#### SEPARATION OF LOCAL AND THROUGH-TRAFFIC

- Depressed or elevated road designed for 20-year future demands.

#### BYPASSING TRAFFIC AROUND BEDFORD

- Should divert east-west traffic from the western part of the state to other corridors such as Route 9 to Concord

- Should try to get traffic around/outside the Town of Bedford.
- Route 101A connects to the Everett Turnpike and could be part of a bypass route. (It could be depressed.)
- Reroute trucks to 101A
- Route 9 might be designated for truck traffic to remove trucks from Route 101.
- There should be a bypass that serves the region as a whole.
- Is a bypass politically feasible?
- Would a bypass receive federal funding?
- Development trends in New Hampshire warrant a major east-west highway.
- The Manchester-to-Hampton segment of 101 should be extended west to Vermont as a limited access highway.
- Bedford needs to be protected from all this regional traffic. Bedford is divided by Route 101.
- There are currently roads that connect through Merrimack from Everett Turnpike to the Milford 101 Bypass, for example, Continental Drive.
- Bypasses will be wanted by other towns in the 101 Corridor as well as Bedford.
- A bypass is a long term action that will increase taxes and bring lawsuits.
- Will traffic really go down if a bypass is implemented?
- 2% annual growth is common for the region
- 4% previous growth along 101
- 80% of road use is non-Bedford traffic

#### ACCOMMODATING TRAFFIC ON ROUTE 101

- Should Route 101 be widened to five lanes in the near future?
- Reconstruct Route 101 as a depressed highway.
- But, "if you build it, they will come."
- Cape Cod doesn't see fit to build bigger bridges, but it has grown a lot.
- More traffic will cause more pollution.
- 101 should be widened at intersections.
- Signals may cause traffic to divert back to Route 101A.
- Route 9 in Wellesley Massachusetts has a section with a neighborhood access road that works well to separate through and local traffic. There are also overpasses connected to these access roads.
- The failure of 101 to process traffic leads to failure of local roads as traffic diverts.
- There are existing bypasses on local roads, such as Donald Street. Impacts on these roads should be considered.

- Tolls should be considered to discourage traffic and provide funds for improvements.

#### ACCOMMODATING PEDESTRIANS AND BICYCLES

- Pedestrian facilities in Bedford are non-existent both along 101 and on side roads. There is no safe access to 101.
- Pedestrian overpass/underpass should be considered.
- Pedestrian overpass/underpass should be provided at Bell Hill Road.

#### SAFETY

- Safety is a critical issue and left turn lanes and traffic signals are needed at critical intersections.
- Should signalize key intersections like Wallace Road/101 but leave 101 two-lane between these intersections.
- But, additional traffic signals will delay traffic and could encourage cut-through routes.
- Traffic light needed toward west end of 101 in Bedford.
- Nashua Road with recreation complex needs traffic light too.
- Traffic lights should be well timed.
- Should install timed (coordinated) traffic signals along 101. Traffic could be slowed with timed signals at Stowell/Joppa Hill, Hardy/Jenkins, and Nashua Roads.
- Traffic lights may be needed on other roads in addition to 101.
- Gage Girls Road intersects at a crest in 101. Need to protect left turns in and out, and improve the sight distance.
- Should close off the Hunter Road intersection with 101 – it's too dangerous.
- New Jersey barriers [concrete barriers] should be placed in the median to protect against cross-over accidents and to prohibit certain dangerous left turns. Elk Lane, Beaver lane, and Freedom Way are examples.
- But, don't want 101 to become like Route 1 with median barriers and prohibited left turns.
- Jug-handle intersections should be provided to allow one to reverse direction: this replaces dangerous left turns with right turns from the opposite direction. The Joppa Hill intersection has room for one.
- Traffic calming is needed: ways to slow traffic.
- Posted speed limits should be lowered. There are enforcement issues, however.
- School bus stops/pullouts should be provided.

#### **COMMERCIAL DEVELOPMENT AND TRAFFIC**

- Don't want more commercial development along 101.
- Want structured commercial business development, with good, safe access.
- The Town should purchase land to avoid more development
- Buy up existing undeveloped land.

#### **QUESTIONS RAISED IN TRAFFIC/SAFETY SESSION:**

- What to do about the effects of redirected traffic?
- Effect in Bedford of increased traffic to Manchester Airport?
- Effect of development on land west of Bedford?

#### **IMPLEMENTATION STRATEGY**

- Need to look at short term as well as long term solutions.
- Short term: need left turn lanes
- Short term means 1 to 2 years
- Long Term: need to look 20 years into the future.
- Bypasses take 20 to 30 years to be approved and built and are not guaranteed.

#### **SESSION ON LAND USE, DEVELOPMENT, TOWN CENTER, AND AESTHETICS**

Below is a list of the various ideas suggested by individual citizen participants of the Land Use/Development/Aesthetics breakout session:

- Most valued aspect of town: its heritage, for example, historic town center, Joppa Hill Farm, Bedford Village Inn
- Would like to see human scale proportions in town center and other areas, with priority given to pedestrians, not automobiles

#### **PEDESTRIAN AND BICYCLE CONNECTIONS**

- Would like to walk and bike throughout town, but can't do it now because many places are unsafe.
- Need to overcome the barrier effect ("moat effect") of Route 101 and connect centers of activity like the library, Riley Field, and shopping areas.
- One or two overpasses for pedestrians and bikes, especially kids. Could be located at Bell Hill/Nashua and at Joppa Hill/Stowell.
- Consider a wide overpass with gentle approach grades that will encourage people to use it. A wide, landscaped overpass of a highway in Alberta was presented by one participant as an example of a way the barrier effect could be overcome.
- The main objective is to provide places to walk in the town center, where speed of vehicles and narrow width of secondary roads are drawbacks. It follows from this

that it should also be possible to walk and bicycle safely on collector roads such as Wallace, Meetinghouse, Nashua, and the collector roads west of the town center. However, this must be done in a way that preserves heritage, particularly old stone walls and trees.

- Pedestrian/bicycle paths along Wallace Road and other feeder roads.
- Construction of a Bedford High School is an opportunity to advance other improvements that provide access to it.

#### MANAGING TRAFFIC

- Should separate through and local traffic.
- Should reduce left turns in and out of businesses on Route 101.
- Ways to separate traffic include frontage roads along each side, perhaps with the through lanes of 101 partially depressed to reduce impacts and make overpasses easier; examples include a portion of Massachusetts Route 9 in Wellesley MA, and Grand Central Parkway in New York.
- Might only need to depress 101 partially, splitting the difference in grad with overpass.
- Depress 101 and overpass local streets (needs provision for snow removal) like Grand Central Parkway.
- Another strategy suggested was to make Route 101 a boulevard with planted median and reduced speeds to permit people to cross safely at grade.
- Traffic signals would help crossings but stops and starts at signals also create noise and pollution.
- Another suggested strategy was to reroute traffic around the town center.

#### TOWN CENTER

- Town center uses should be located in a compact triangle that includes overpasses or other measures to overcome the barrier effect. However, new uses should not overwhelm the town center with too much activity.
- There should also be visual connections between town center uses to the extent possible.
- A concept was presented by a participant for creating an activity center south of 101 behind the Village Shops and connecting to the site proposed for a high school.
- A park should be created on land along the highway between Bell Hill and Meetinghouse Roads rather than a commercial use. The park land should include bicycle and walking path connections; Portland Maine has a good example. A committee is working on the park project independently, and this work needs to be input to the Corridor study.

#### **COMMERCIAL DEVELOPMENT IN THE CORRIDOR**

- It is a shared objective to differentiate between the larger scale commercial uses allowed along Route 3 and the smaller scale commercial uses in the 101 Corridor.
- The development along Route 101 should be "user friendly", respond to Bedford's heritage in their design, and enhance their sites.
- A vision for development along Route 101 that had support in the land use session was to create "pods" of connected uses where one can park once and walk between shops on pleasant paths.

#### **CORRIDOR AESTHETICS**

- The highway corridor should generally have green trees along the sides with the exception of open fields and wetlands. Businesses should landscape their sites to create green edges and preserve this quality of most of the Corridor. Parking requirements should not be reduced, but should be provided in small landscaped lots rather than one large expanse of asphalt. Site planning and landscaping are key aspects.
- Architecture is currently varied. Is there any way to provide guidelines for roofs, etc., that would fit in with the Bedford heritage, especially in the town center. The best buildings in the Corridor do this now.
- "The more green the better" We should preserve the trees there now and there should be no loss of large trees to highway improvements or development.
- Development in "pods" along the highway with trees before and after and landscaping alongside. Good pedestrian circulation within each pod connect shops so one only needs to park once.

#### **CITIZEN COMMENTS AT COMBINED SESSION AFTER BREAKOUT GROUPS RECONVENED**

- Need to identify short term solutions
- Identify high problem areas and give these priority
- Safety is highest priority
- Safety improvements – bus loops, access controls, etc.
- Side-road improvements needed along 101.
- Are special appropriations for highway improvements needed/possible??
- Access management at businesses needed.
- People cannot access their own town because of the through traffic.
- If a bypass is a 30-year proposition, still need a series of actions between now and then to improve safety, manage access, provide town center improvements, overcome barrier effect, etc. If properly planned and designed, these will be useful and cost-effective even after a bypass is realized; and if the bypass is not realized they are even more necessary.

## Bedford Route 101 Advisory Committee Meeting Notes

October 11, 2001 Bedford Town Offices  
7:00 – 9:30 PM

KAREN WHITE CALLED THE MEETING TO ORDER.

### **BYPASS ISSUES.**

MARTY KENNEDY OF VHB'S BEDFORD OFFICE DISCUSSED THE ISSUES INVOLVED IN STUDYING AND IMPLEMENTING A BYPASS, FOR WHICH A GREAT DEAL OF SUPPORT HAD BEEN EXPRESSED IN PREVIOUS PUBLIC AND COMMITTEE MEETINGS AND AT THE SEPTEMBER 19 VISIONING WORKSHOP. A BYPASS IS A MAJOR UNDERTAKING WHICH WOULD HAVE TO GO THROUGH SEVERAL STAGES, BEGINNING WITH A FEASIBILITY STUDY WHICH WOULD PROBABLY COST IN THE RANGE OF \$750,000 TO \$1 MILLION. IF THE FEASIBILITY STUDY IS SUPPORTS A BYPASS (BASED ON TRANSPORTATION BENEFIT AND ESTIMATED ENVIRONMENTAL IMPACT AND COST) A BYPASS PROJECT WOULD GO THROUGH ENVIRONMENTAL IMPACT REVIEW, DESIGN, AND CONSTRUCTION, WITH AN OVERALL COST (FOR A NEW ROADWAY ALIGNMENT) OF \$85 TO \$90 MILLION AND A TIME FRAME OF 20 TO 30 YEARS. ODDS ARE AGAINST THE SUCCESS OF SUCH A PROJECT, BASED ON THE EXPERIENCE OF SEVERAL BYPASS PROPOSALS IN NEW HAMPSHIRE OVER THE PAST 40 YEARS.

(AFTER THE MEETING, SOME MEMBERS OF THE COMMITTEE COMMENTED THAT THERE WAS SUPPORT FOR USING EXISTING ROADS AS A BYPASS RATHER THAN BUILDING A NEW ROAD. HOWEVER, MANY OF THE SAME PROBLEMS WOULD EXIST WITH THE USE OF EXISTING ROADS, BECAUSE THEY WOULD PROBABLY HAVE TO BE WIDENED OR

OTHERWISE IMPROVED TO ACCOMMODATE THE TRAFFIC WHICH A SUCCESSFUL BYPASS WOULD CARRY, AND THIS WOULD ENTAIL WETLAND IMPACTS AND PROPERTY TAKINGS, PERHAPS TO A GREATER EXTENT THAN A NEW ALIGNMENT, ALTHOUGH THE FINAL COST OF THE RIGHT-OF-WAY MIGHT BE LOWER. THIS IS BECAUSE EXISTING ROADS IN THE RIGHT PLACE TO BE USED AS A BYPASS HAVE HOUSES AND OTHER DEVELOPMENT ALONG THEM, AND MANY ROADS HAVE ADJACENT WETLANDS. THE LOCAL OPPOSITION FROM PEOPLE WHO WOULD BE AFFECTED BY THE BYPASS WOULD BE NO LESS THAN FOR A NEW ROUTE.)

IT WAS NECESSARY TO TURN TO OTHER AGENDA ITEMS AFTER APPROXIMATELY ONE HOUR OF DISCUSSION OF THE BYPASS ISSUES, SO IT WAS SUGGESTED THAT A BYPASS BE INCLUDED AS ONE OF THE PACKAGES OF OPTIONS THAT THE CONSULTANTS WILL EVALUATE OVER THE NEXT MONTH, WITH DISCUSSION OF ALL PACKAGES AT THE NOVEMBER 13 ADVISORY COMMITTEE MEETING AND THE NOVEMBER 29 PUBLIC WORKSHOP. SINCE THE FEDERAL TCSP GRANT WHICH IS PAYING FOR THE CORRIDOR STUDY IS ORIENTED TOWARD SMALLER SCALE SYSTEMS IMPROVEMENTS TO THE EXISTING ROADWAYS AND ADJACENT LAND USE, THE STUDY DOES NOT HAVE THE CAPABILITY OF DOING MORE THAN THIS ON THE BYPASS ISSUE; HOWEVER, A FEASIBILITY STUDY OF A BYPASS COULD BE INCLUDED IN THE LONG RANGE CORRIDOR PLAN WHICH WILL BE THE PRODUCT OF THE STUDY IF THIS COURSE OF ACTION SEEMS ADVISABLE AFTER THE EVALUATION OF OPTION PACKAGES.

## **ISSUES AND OPTIONS FOR IMPROVEMENTS OF THE BEDFORD ROUTE 101 CORRIDOR**

THE COMMITTEE DISCUSSED ISSUES AND POSSIBLE OPTIONS SUBMITTED BY THE COMMITTEE MEMBERS BASED ON INPUT IN THEIR NEIGHBORHOODS, THE PREVIOUS PUBLIC MEETING AND WORKSHOP, AND THE COMMUNITY PHOTO SURVEY (WHICH IS ON DISPLAY IN THE TOWN OFFICES.)

THE FOLLOWING OPTIONS WERE SUGGESTED. THESE WILL BE STUDIED AND EVALUATED BY THE CONSULTANT TEAM OVER THE NEXT MONTH. SOME OF THESE OPTIONS ARE ALTERNATIVES TO ONE ANOTHER AND WILL BE ORGANIZED INTO PACKAGES ACCORDINGLY. THE EVALUATIONS WILL BE BASED ON CRITERIA INCLUDING:

- TRAFFIC FLOW AND CONVENIENCE
- SAFETY
- AVAILABLE RIGHT-OF-WAY AND EFFECT OF ANY TAKINGS REQUIRED; EFFECT ON PROPERTY VALUES OF PROPERTIES NOT TAKEN BUT AFFECTED BY IMPROVEMENTS
- EFFECT ON TRAFFIC DIVERSION AND CUT-THROUGHS ON NEIGHBORHOOD STREETS
- ENVIRONMENTAL IMPACTS ON RESIDENCES, NEIGHBORHOODS, HISTORIC RESOURCES, AND THE NATURAL ENVIRONMENT.
- ECONOMIC EFFECTS ON COMMERCIAL USES AND PROPERTY VALUES.
- AESTHETICS
- COST

POTENTIAL OPTIONS ARE LISTED APPROXIMATELY IN THE ORDER DISCUSSED, NOT IN TERMS OF PRIORITY, WHICH HAS YET TO BE ESTABLISHED.

1. SIGNALIZED INTERSECTIONS WITH LEFT TURN LANES. COORDINATION OF SIGNAL TIMING TO ENCOURAGE LOWER SPEEDS AND REDUCE NOISE AND OTHER IMPACTS FROM STOPPING AND STARTING TRAFFIC WILL BE STUDIED IN CONNECTION WITH EXISTING AND POTENTIAL NEW SIGNALS. POSSIBLE LOCATIONS:

- JOPPA HILL RD. /STOWELL RD. (POSSIBLE JUG HANDLE CONFIGURATION)
- HARDY RD./JENKINS RD.
- NASHUA RD., BELL HILL RD.

2. LIMITATION OF LEFT TURNS AT DIFFICULT/DANGEROUS INTERSECTIONS WITH PROVISIONS FOR REVERSING DIRECTION, SUCH AS "JUG-HANDLE" INTERSECTIONS.

- POTENTIAL LOCATIONS:
- FREEDOM WAY,
- BEAVER LANE,
- ELK LANE,
- GAGE GIRLS RD.
- HUNTERS RD./GREY ROCK RD.,

- KAHLIKO LANE
- BEDFORD CENTER ROAD (EAST END NEAR THE VILLAGE INN)
- LIBERTY HILL RD. (USE MEETINGHOUSE RD. SIGNAL FOR LEFT TURN)
- SOME OR ALL COMMERCIAL AREAS

3. PROVISION OF LEFT TURN LANES WHERE SIGHT DISTANCES ARE ADEQUATE BUT SIGNALS ARE NOT WARRANTED, E.G., TWIN BROOK LANE.

4. OVERPASSES/UNDERPASSES (PEDESTRIAN/BICYCLE AND/OR VEHICULAR).  
POTENTIAL LOCATIONS:

- NASHUA RD./BELL HILL RD.
- EAST END OF BEDFORD CENTER RD.
- JOPPA HILL RD.
- ROUTE 114/101

5. SEPARATION OF THROUGH TRAFFIC FROM LOCAL TRAFFIC BY MEANS OF FRONTAGE ROADS PARALLELING ROUTE 101 AND PROVIDING ACCESS TO BUSINESSES. THIS MIGHT BE DONE ALL AT-GRADE, OR WITH PARTIAL DEPRESSION OF THE THROUGH LANES. POSSIBLE LOCATIONS:

- THROUGH THE SECTION WITH INTERSECTIONS FROM FREEDOM WAY TO ELK LANE

- THROUGH THE COMMERCIAL AREA ON EITHER SIDE OF HARDY RD/JENKINS RD.
- BETWEEN WALLACE RD AND NASHUA RD.

6. REMOVAL OF INTERSECTIONS (AND REPLACEMENT OF NEIGHBORHOOD EGRESS WHERE NEEDED). POSSIBLE LOCATIONS:

- KAHLIKO LANE
- THE SEGMENT OF LIBERTY HILL RD NORTH OF ROUTE 101
- ONE OF THE CLOSELY SPACED INTERSECTIONS OF PINECREST DRIVE
- ONE OF THE CLOSELY SPACED INTERSECTIONS OF SHAW DRIVE/COLONIAL DRIVE

7. POTENTIAL NEW ROADWAY SEGMENTS

- EXTENSION OF COUNTY ROAD FROM WALLACE RD. TO NASHUA RD.
- A SIMILAR CONNECTION LOCATED CLOSER TO ROUTE 101 BEHIND THE VILLAGE SHOPS AND OTHER COMMERCIAL USES BETWEEN WALLACE RD. AND NASHUA RD.

8. AESTHETIC IMPROVEMENTS INCLUDING LANDSCAPING AT WALLACE RD., ALONG COMMERCIAL ZONES, AND AT OTHER LOCATIONS ALONG ROUTE 101.

9. IMPROVEMENTS TO COLLECTOR ROADS SUCH AS JOPPA HILL, HARDY, WALLACE, MEETINGHOUSE AND OTHERS WHICH MIGHT RECEIVE ADDITIONAL TRAFFIC IF TRAFFIC SIGNALS ARE ADDED AND TURNS RESTRICTED AT OTHER NEIGHBORHOOD STREETS.

10. IMPROVEMENTS TO PEDESTRIAN AND BICYCLE ACCESS IN THE HISTORIC TOWN CENTER, POTENTIALLY INCLUDING A SAFE CIRCUIT INCLUDING THE HISTORIC CENTER, SHOPS, BENEDICTINE LAND, AND TOWN RECREATION FACILITIES AND POTENTIAL HIGH SCHOOL ON NASHUA RD. COULD POTENTIALLY EXTEND TO DONALD STREET.

11. REDESIGN OF THE "SQUEEZE" FROM TWO LANES TO ONE AS ONE PROCEEDS WESTBOUND FROM THE RTE 114/101 INTERSECTION.

12. POTENTIAL PLANTED MEDIAN OR OTHER MEANS TO PREVENT CROSS-OVER ACCIDENTS. MAY ALSO HAVE VALUE FOR PEDESTRIAN CROSSINGS AT SOME LOCATIONS.

13. MEASURES TO REDUCE NEIGHBORHOOD CUT-THROUGHS, E.G., HAZEN RD./PAULINE ST., NORTH AMHERST RD., MEETINGHOUSE RD, AND OTHERS.

14. TOWN CENTER IMPROVEMENTS SUCH AS NEW PARK LAND BETWEEN BELL HILL AND MEETINGHOUSE RD., NEW ACTIVITY LOCATIONS SOUTH OF RTE 101, ETC.

15. GUIDELINES TO IMPROVE FUTURE DEVELOPMENT IN EXISTING COMMERCIAL ZONES ALONG RTE 101.

## Bedford Route 101 Advisory Committee Meeting Notes

November 13, 2001 Bedford Town Offices

7:00 – 9:30 PM

APPROXIMATELY 30 COMMITTEE MEMBERS AND CITIZENS WERE IN ATTENDANCE. MARTY KENNEDY OF VHB'S BEDFORD OFFICE AND JIM PURDY OF WALLACE FLOYD DESIGN GROUP PRESENTED A LIST OF POTENTIAL OPTIONS FOR ROUTE 101 CORRIDOR IMPROVEMENT FOR THE COMMITTEE'S CONSIDERATION. THESE WERE ORGANIZED INTO SHORT TERM (1-3 YEARS), MEDIUM TERM (4-10 YEARS) AND LONG TERM ACTIONS(MORE THAN 10 YEARS). THE OPTION OF A BYPASS TO THE EXISTING ROUTE 101 WAS INCLUDED AS A LONG-TERM OPTION.

PACKAGES DISCUSSED WERE AS FOLLOWS:

	ORDER OF MAGNITUDE COST
POTENTIAL SHORT-TERM ACTIONS	K= THOUSAND mil= million
CENTER LEFT-TURN LANE	
FREEDOM WAY TO ELK DRIVE	\$500K
TWIN BROOK LANE	\$200K
WEST OF WALLACE TO NEAR KAHLIKO	\$300K

<b>INTERSECTION MODIFICATIONS</b>	
WIDEN 101 WESTBOUND FROM 114 THRU OLD BEDFORD RD.	\$500K
TRAFFIC SIGNAL AT HARDY/JENKINS RDS.	\$2 MIL
TURN PROHIBITIONS OR STREET CLOSURES ALONG 101	
SHAW DRIVE	MINIMAL
LIBERTY HILL ROAD	MINIMAL
BEDFORD CENTER RD. (EAST END)	MINIMAL
PINECREST DRIVE	MINIMAL
KAHLIKO LANE	MINIMAL
<b>POTENTIAL MID-RANGE OPTIONS</b>	
CONNECTION TO TOWN CENTER	
OVERPASS CONNECTING NASHUA AND BELL HILL RDS. (NO CONNECTION TO RTE 101)	\$3 MIL
CONNECTOR ROAD BETWEEN WALLACE AND NASHUA RDS.	\$750K

(Mid-Range Options, continued)	
<b>CORRIDOR SEGMENT MODIFICATIONS</b>	
WIDEN 101 AT MEETINGHOUSE RD.	\$2 MIL
TRAFFIC SIGNAL AT JOPPA HILL RD.	\$2 MIL
JUG HANDLE TURNS AT JENKINS AND JOPPA HILL RDS.	\$1 MIL
LINKS TO SIGNALIZED INTERSECTIONS	VARIES
<b>CORRIDOR SEGMENT MODIFICATIONS</b>	
WIDEN 101 FROM 114 TO MEETINGHOUSE (4-LANE MEDIAN DIVIDED)	\$3 MIL
WIDEN 101 FROM MEETINGHOUSE TO WALLACE (4-LANE BOULEVARD W/ EXCLUSIVE LEFT TURN)	\$3 MIL
<b>POTENTIAL LONG-RANGE OPTIONS</b>	
<b>INTERSECTION MODIFICATIONS</b>	
DIAMOND OR 1/2 -DIAMOND INTERCHANGE AT JOPPA HILL RD.	\$4-5 MIL
DIAMOND OR DIAMOND INTERCHANGE AT HARDY/JENKINS RDS.	\$4-5 MIL
FLYOVER RAMP AT 101/114	\$10-12

	MIL
<b>CORRIDOR SEGMENT MODIFICATIONS</b>	
DEPRESS 101 FROM NASHUA RD TO WALLACE RD. WITH PARALLEL COLLECTOR-DISTRIBUTOR RDS	\$20 MIL
WIDEN 101 FROM WALLACE RD. TO JOPPA HILL RD. (4-LANE MEDIAN DIVIDED)	\$10 MIL
<b>ALTERNATIVE ROUTES</b>	
BY-PASS ON NEW ALIGNMENT AND/ OR EXISTING ROADWAY CORRIDORS	\$80-100 MIL

COMMITTEE COMMENTS INCLUDED THE FOLLOWING

IN RESTRICTING TURNS FOR SAFETY, RIGHT TURNS INTO SIDE STREETS AND  
BUSINESSES SHOULD ALSO BE CONSIDERED SINCE DECELERATING TO MAKE A TURN  
HAS SOME RISK OF BEING REAR-ENDED.

THERE IS BICYCLE TRAFFIC ON THE SHOULDER OF ROUTE 101, SO THE SHOULDERS  
SHOULD BE MAINTAINED AT A WIDTH THAT ACCOMMODATES BICYCLES.

THERE WERE MANY CONCERNS ABOUT STREET CLOSURES. AT SHAW DRIVE, STEEP GRADES MAKE IT DIFFICULT TO DRIVE ROUND TO COLONIAL DRIVE WHEN THERE IS SNOW AND ICE ON THE STREET. IN SOME OF THE RESIDENTIAL SUBDIVISIONS, TWO ENTRANCES WERE PROVIDED ON ROUTE 101 TO AVOID LONG CUL DE SACS, WHICH ARE PROHIBITED BY THE TOWN'S DEVELOPMENT REGULATIONS. IT IS ALSO UNFAIR TO CHANGE COURSE AFTER THE TOWN REQUIRED THESE MEANS OF EGRESS ON THE HIGHWAY. REGARDING POSSIBLE CLOSURE OF THE KAHLIKO LANE ENTRANCE TO 101, IT MIGHT BE PREFERABLE TO CLOSE THE EAST END OF HITCHING POST LANE INSTEAD, BECAUSE OF THE NUMBER OF HOMES SERVED AND BECAUSE OF BETTER VISIBILITY AT KAHLIKO THAN AT HITCHING POST. THERE WAS ALSO CONCERN THAT CLOSING ACCESS POINTS TO 101 OR RESTRICTING LEFT TURNS WOULD DIVERT TRAFFIC TO OTHER RESIDENTIAL STREETS AND RESULT IN A LONGER TRIP FOR RESIDENTS WHO NOW USE THE ACCESS POINTS THAT WOULD BE CLOSED OR RESTRICTED. (NOTE: IN ALL CASES, ACCESS FOR EMERGENCY VEHICLES WOULD BE MAINTAINED. THE AMOUNT OF TRAFFIC DIVERTED WOULD BE RELATIVELY SMALL BECAUSE THE STREETS AFFECTED ARE SMALL.)

REGARDING A NASHUA RD/BELL HILL RD OVERPASS AND NEW CONNECTION BETWEEN WALLACE RD AND NASHUA RD: HAVE THE CONSULTANTS COORDINATED WITH THE PEOPLE PLANNING THE PROPOSED HIGH SCHOOL? (NOT YET BUT THIS COORDINATION WILL HAPPEN SOON.) WILL THERE BE UNWANTED TRAFFIC THROUGH THE TOWN CENTER? (THERE SHOULD BE LITTLE DIVERSION THROUGH THE HISTORIC TOWN CENTER BECAUSE BETTER ROUTES WILL EXIST FOR TRAFFIC NOW USING NASHUA ROAD, INCLUDING MEETINGHOUSE RD AND THE PROPOSED CONNECTOR TO THE WALLACE RD INTERSECTION.) THERE WAS ALSO CONCERN ABOUT

REOPENING AN OLD CLASS-B ROAD AND INTRODUCING TRAFFIC IN AN AREA THAT IS NOW FARM LAND AND OPEN SPACE.

REGARDING AN UPGRADED MEETINGHOUSE RD INTERSECTION WITH RTE 101, THERE WAS CONCERN ABOUT BOTH THE APPEARANCE OF A LARGER INTERSECTION AND THE INDUCEMENT OF CUT-THROUGH TRAFFIC ON MEETINGHOUSE ROAD. (AT THE PUBLIC MEETING ON 11/29, THE CONSULTANTS WILL SHOW A LANDSCAPING SCHEME FOR THE INTERSECTION, AS WELL AS LANDSCAPING IMPROVEMENTS FOR THE WALLACE RD INTERSECTION.)

CONCERNS WERE EXPRESSED ABOUT OPTIONS THAT INVOLVE WIDENING TO 4 LANES BETWEEN ROUTE 114 AND WALLACE ROAD. CONCERNS INCLUDE AESTHETICS OF A WIDER ROAD, POSSIBLE TAKINGS, AND WETLAND IMPACTS.

THERE WERE ALSO SIMILAR CONCERNS ABOUT LARGER SCALE LONG-RANGE IMPROVEMENTS SUCH AS JUG-HANDLE INTERSECTIONS, DIAMOND INTERCHANGES (SIMILAR TO THOSE IN AMHERST) AND FLY-OVER RAMPS AT 101/114.

THERE WAS ALSO DISCUSSION OF THE BYPASS OPTION, INCLUDING BOTH ITS GREATER BENEFITS TO BEDFORD AND THE ROUTE 101 CORRIDOR AND ITS VERY CONSIDERABLE COST, TIME, AND THE HIGH LEVEL OF OPPOSITION THAT CAN BE EXPECTED. IT WAS NOTED THAT THE MANCHESTER AIRPORT BYPASS ROAD HAS BEEN IN PLANNING AND DESIGN SINCE 1986 AND STILL HAS A WAY TO GO. (NOTE: IT APPEARS THAT THE NON-LOCAL SHARE OF TRAFFIC ON ROUTE 101 IN BEDFORD IS CLOSER TO THE 55% TO 60% RANGE THAN 80% AS PREVIOUSLY REPORTED; HOWEVER THIS IS STILL A VERY LARGE PORTION OF THE TRAFFIC THAT WOULD BE RELIEVED BY A BYPASS.)

OTHER COMMENTS:

THE PLAN SHOULD INCLUDE PUBLIC TRANSPORTATION AND CAR-POOLING TO REDUCE TRAFFIC AND AIR POLLUTION.

WE SHOULD CONSIDER A PEDESTRIAN UNDERPASS SUCH AS THE ONE AT BRAGDON FARM.

NEW COMMERCIAL DEVELOPMENT SHOULD BE CONTROLLED THROUGH ZONING OR PURCHASE OF PROPERTY.

THE CONSULTANTS SHOULD COME TO THE NOVEMBER 29 PUBLIC MEETING (7PM AT THE MCKELVIE SCHOOL) EQUIPPED WITH MORE RENDERINGS AND VISUAL EXHIBITS THAT ILLUSTRATE THE OPTIONS BEING DISCUSSED. MEMBERS WOULD ALSO LIKE MORE INFORMATION ON THE NUMBER OF HOUSES THAT HAVE ACCESS DIRECTLY FROM ROUTE 101 AND THE SPECIFIC TAKINGS THAT CERTAIN OPTIONS WOULD ENTAIL.

## Consensus-Building Workshop Notes

November 29, 2001

7:00 – 9:30 PM

Approximately 50 Bedford residents and business people attended the workshop, which was held at McKelvie Middle School. Exhibits on display included both engineering plans for intersection improvements at Joppa Hill/101, Hardy/Jenkins/101, Meetinghouse Rd/101, Old Bedford Rd/101, and 114/101; and renderings of landscape concept for the Wallace/101 and Meetinghouse/101 intersections, a boulevard section of 101 between Meetinghouse and Wallace Roads, and views of a possible overpass from Nashua to Bell Hill Road. The consultants discussed these exhibits with the people attending the meeting prior to the start of the presentation. **These exhibits are posted on the project website, which is linked to the Town's web page.** Also on display were a map of two possible routes that had been proposed by others for a Route 101 bypass, and letters from the Town of Merrimac, the Nashua Regional Planning Commission, and New Hampshire DOT regarding a possible bypass.

Planning Director Karen White introduced the consultants hired to do the Route 101 Corridor Study. Martin Kennedy, Assistant Project Manager from Vanasse Hangen Brustlin's Bedford office gave a brief presentation of preliminary roadway improvement options developed since the September 29 Visioning Workshop. **An outline of the presentation is attached.** Following the presentation, Jim Hicks, principal of RKG Associates, facilitated discussion of the options. Jim Purdy, the Corridor Study Project Manager, and Skip Smallridge, Principal Urban Designer, from Wallace Floyd Design Group, were also present.

### SUMMARY:

- Several people expressed support for the concept of providing an overpass for local traffic, pedestrians, and bicycles from Nashua Road to Bell Hill Road.
- Among those present, most (but not all) comments regarding a possible bypass questioned its feasibility and suggested that the bypass option not be pursued, at least not as a substitute for other needed improvements.
- There was general support for short-term improvement of the bottleneck as westbound Route 101 traffic heads out of the 114/101 intersection toward Old Bedford Rd/Constitution Drive. There was also support for additional future upgrades to keep the intersection operating as traffic increases.
- There was general support for signalizing the Hardy/Jenkins/101 intersection as soon as possible.
- There was also support for landscaping improvements including a boulevard cross-section in the commercial area east of Wallace Road, as those shown in the renderings exhibited at the workshop.

## ADDITIONAL COMMENTS AND QUESTIONS

Q: How much is traffic on Route 101 expected to increase over the next 20 years? A: Based on regional planning commission traffic modeling, traffic volumes are projected to increase about 1.7% per year in the future. This would result in a 40% increase over 20 years. Increases of this magnitude would probably occur in the 101 corridor even if little or no improvement was made to the roadway and its intersections; however, without the improvements, more traffic would divert from Route 101 itself to secondary cut-through routes.

Q: How much of the traffic in the 101 Corridor is non-local? A: The proportion of non-local traffic varies from place to place. There hasn't been a so-called "origin-destination study" in recent years, which is needed to give a precise answer to this question, but it appears that 50-60% of the traffic is regional through traffic as opposed to traffic with an origin or destination in Bedford.

Comment: the bottleneck downstream from the 114/101 intersection should be fixed, but we should also consider upgrading the intersection in the shorter rather than longer term, perhaps with a flyover ramp which would allow Route 101 westbound traffic to pass over the intersection rather than going through it.

Comment: the Nashua/Bell Hill overpass is a good idea, but in the short term, there should be a traffic signal to solve immediate problems. [Note: there are problems with the geometry of this intersection and having this and the nearby Meetinghouse Rd intersection signalized would create traffic flow problems.]

Q: Does a flyover ramp at the 101/114 intersection create problems downstream? A: The intersection at Old Bedford Road acts as a gateway that limits the volumes transmitted further downstream to the Meetinghouse and Wallace Road intersections. The flyover would not overload this gateway.

Q: How does the short-term improvement to the bottleneck work? Does it just move the bottleneck further west? A: The short-term solution is to extend a second westbound lane through the Old Bedford Road intersection. This actually improves the problem by providing a longer distance for cars to merge and removing a neck-down in the approach to the intersection as is the case today. These improvements reduce the bottleneck, and don't simply move it.

Q: The presentation discussed limiting left turns and possibly closing some side streets such as one of the two outlets to Pinecrest Drive. Wouldn't this cause a problem for emergency vehicles? A: Nothing that is proposed in the plan will impede emergency vehicles; if an option did it would be dropped. Most restrictions or closures would be designed to admit emergency vehicles and maintain a second means of egress for emergencies.

Comment: The Nashua Rd overpass is nice, but where does the traffic go? Won't it increase traffic in the historic town center, where intersections were not designed for modern traffic, and create pressure to "improve" them, which would impact the center's historic character? Response: the plan will carefully consider the effects on traffic patterns and would not encourage more traffic in the historic center. The Nashua/Bell Hill

overpass would not be connected to Route 101 and would serve only local traffic. In addition, there are ways to discourage cut-throughs and slow traffic, and doing this will be the next step in the development of the 101 Corridor Plan.

Comment: Nonetheless, we must develop good solutions to cut-throughs in the historic center before deciding on the improvements to Route 101.

Comment: The proposed boulevard section in the commercial center (i.e., Wallace Road to Nashua Road) is a good option, but we should also get the utilities to put the power lines underground, which would beautify the area and avoid later damage to street trees. [Note: the utilities would not pay the cost of putting the lines underground, so this would be part of the project cost.]

Comment: The Town should consider purchasing commercially zoned land along Route 101 to prevent additional development.

Comment: Diamond intersections or overpasses may be preferable to signalized intersections because of the noise caused when cars and trucks accelerate from a standstill. [However, the visual and other impacts of a diamond interchange at locations like Meetinghouse Road would be worse than the noise impacts it would relieve.]

Comment: an overpass should also be considered for Meetinghouse Road. [Note: it would be a problem to disconnect Meetinghouse Road from Route 101 as is proposed in the Nashua/Bell Hill overpass option. Creating an overpass with connections to the road it passes over would have a much larger footprint than the existing intersection.]

Comment: many of the short and medium term options are worthwhile, but we shouldn't neglect the bypass as a long-range option. The plan should do both.

Comment: we should make step-by-step improvements that we think we can get instead of putting our hopes on a future bypass: "a bird in the hand is worth more than two in the bush".

Comment: The boulevard suggested for the commercial center of town is good, but we should also work to get connections between commercial uses so one doesn't have to go out onto the Route 101 boulevard to go from one shop to the one next door.

Comment: The overpass idea is good, but we also need to work to slow traffic in the historic town center.

Comment: The land behind the library has been discussed for use as a "village common". There should be pedestrian connections to this, potentially from the suggested overpass.

Comment: the concepts presented are generally good, but we won't need a diamond interchange at Jenkins Road—the proposed traffic signal should be enough.

We need to address all of the approaches to the 114/101 intersection, not just the Route 101 traffic. [Note: the presentation included some ideas about a longer range modification of the intersection, which would address all of the movements.]

Comment: We need to address all of the approaches to the 114/101 intersection, not just the Route 101 traffic. [Note: the presentation included some ideas about a longer range modification of the intersection, which would address all of the movements.]

Comment: The concepts presented are good, but need to consider specific problems, such as getting out of Pinecrest Drive and over to the eastbound left turn lane at Meetinghouse Road.

## **Workshop 2 Presentation Outline**

### **Where we are in the Study**

- Data Collection/Analysis/Input

#### ***Workshop 1 (September 19, 2001)***

- Vision
- Develop and Evaluate Options

#### ***Workshop 2 (November 29, 2001)***

- Build consensus on options
- Develop Immediate Action Program
- Develop Draft Corridor Plan

#### ***Public Meeting (Spring 2002)***

- Finalize Plan

### **Corridor Vision**

**Safety - High Priority**

**Balance Capacity Needs with Community Needs**

**Reduce Conflicts**

**Reduce Barrier Effect of Highway**

**Preserve Town Center**

**(historic, commercial, recreational, civic)**

**Maintain Character & Enhance Aesthetics**

## **Components of the Plan:**

### **Safety**

- Travel Speeds**
- Cut-through Traffic**
- Left Turn Movements**
- Alignment/Sight Lines**
- Pedestrian/Bicycle Mobility**

### **Operations**

- Intersection Capacity**
- Segment Capacity**
- Turn Lanes**
- Local Connections**
- Regional Alternative Routes**

### **Town Character/Aesthetics/Town Connectivity**

- Enhance Town Center**
- Streetscape**
- Limit the Extent of Widening**
- Walkways/Bike Paths**

### **Options for Roadway Improvements:**

- Near-term (1-3 years)**
- Mid-term (4-10 years)**
- Long-term (10+ years)**

### **Near-Term Options (1-3 years)**

- Center Left-Turn Lanes**
- Old Bedford Road Bottleneck**
- Traffic Signal at Hardy/Jenkins**
- Turn Prohibitions**

### **Mid-Term Options (4-10 years)**

- Overpass at Nashua Rd & Bell Hill Rd**
- Nashua Rd to Wallace Rd Connection**
- Upgrade Meetinghouse Rd**
- Traffic Signal at Joppa Hill Rd**
- Connections to Primary Intersections**
- Upgrade NH 101/Rte. 114 intersection**
- 4-lane median divided - 114 to Meetinghouse**
- Boulevard - Meetinghouse to Wallace**

### **Long-Term Options (10+ years)**

- Diamond Interchange at Joppa Hill**
- Diamond Interchange at Hardy/Jenkins**
- 4-Lane median divided west of Wallace Rd**
- Bypass**

### **Bypass - Difficult, Expensive, and Lengthy Process**

- Feasibility Study**
- EIS**
- Preliminary Engineering**
- Prioritized on the State TIP**
- Final Design**
- Construction**

## Bedford Route 101 Advisory Committee Meeting Notes

January 24, 2002 at the Bedford Library  
7:00 – 9:30 PM

The meeting was well attended. Marty Kennedy of VHB's Bedford presented an analysis of traffic in the historic center based on recent traffic counts. This analysis shows that the amount of cut-through traffic is even greater than expected, with more than 500 vehicles per hour in the morning peak period heading eastbound on Meetinghouse Road, compared to roughly 1000 cars on Route 101 during the same period. This indicates that improving traffic flow and adjusting signal timing on Route 101 would substantially relieve traffic in the town center.

Options for Route 101 corridor roadway improvements were discussed and evaluated beginning at the 101/114 intersection and working west. The result of these discussions was a list of questions for the consultants to answer at the next meeting, and consensus on the following options:

- The current bottleneck for westbound traffic leaving the intersection should be remedied in the short term by extending the right lane beyond the Constitutions Drive/Old Bedford Road intersection.
- In the longer term, a complete reconstruction of the 101/114 intersection should occur, rather than a more limited flyover ramp for westbound 101 traffic. The study should consider expediting this improvement.
- The Meetinghouse Road intersection with Route 101 should be improved by widening to five lanes on Route 101 but not widening on the Meetinghouse Road approaches.
- The Jenkins Rd/Hardy Rd intersection with Route 101 should be similarly improved and a traffic signal installed, both as soon as possible.

The Committee would like to further discuss the following options:

- Overpass for local traffic, pedestrians, and bicycles from Nashua Road to Bell Hill Road, combined with a new connector road from Nashua Road to Wallace Road (which would also serve the proposed high school). Nashua Road would no longer intersect with Route 101.
- Widening the Route 101 cross section from the current two lanes to a four lane section with median divider between Route 114 and Meetinghouse Road.

- Widening to a boulevard section with four lanes and a landscaped center median with left turn pockets in Bedford Center extending from Meetinghouse or the Nashua Road overpass to Wallace Road.

In preparation for the next meeting on February 6, Karen White will send the evaluation matrix to members for their rating of each option. The consultants will work on the following issues and questions raised by the Committee.

#### Questions and Issues to Address

- Who would pay for the improvements discussed for the historic center—the town or the state/federal government?
- Who would pay for the proposed connector road from Wallace Road to Nashua Road?
- Should Nashua Road be disconnected from Route 101? Would there be an adverse impact on the Five Corners intersection?
- What will the effect of proposed improvements be on cut-through traffic on the Boynton and Donald Street corridors?
- Could a diamond interchange be constructed at Constitution Drive/Old Bedford Road when the 101/114 intersection is rebuilt, rather than a signalized intersection?
- Will the proposed options together encourage more traffic to divert to the Route 101 corridor from other regional routes? Will the Manchester Airport Access Road have an effect on the 101 corridor.
- How will emergency access be affected by a median-divided roadway?
- How will access and egress to Pinecrest Dive and Shaw/Colonial Drive be affected by the median divided roadway?
- Will there be neighborhood traffic impacts on Hardy and Jenkins Road? What will be the traffic volumes from Hitching Post Lane to Hardy Road?
- Will there be increased cut-throughs on Jenkins and Wallace Roads to Beals Road?

Other topics needing more discussion:

- Proposed High School
- Noise impacts

- Air Quality impacts
- Light pollution
- Acquisition of Open Land
- Continuity with Corridor plans in Amherst.
- Remaining Options west of Wallace Road.

The next meeting, on Wednesday February 6 at the Bedford Library, will also discuss pedestrian and bicycle issues as indicated in the schedule.

## Bedford Route 101 Advisory Committee Meeting Notes

February 6, 2002 at the Bedford Library  
7:00 – 9:30 PM

THE MEETING WAS WELL ATTENDED. DISCUSSION CONTINUED ON THE LIST OF OPTIONS FOR ROADWAY IMPROVEMENTS. DISCUSSION OF PEDESTRIAN AND BICYCLE IMPROVEMENTS WAS POSTPONED TO THE NEXT MEETING, WHICH WILL BE ON FEBRUARY 28<sup>TH</sup> AT THE LIBRARY.

THE FOLLOWING ITEMS WERE PROVISIONALLY ADVANCED FOR A MORE DETAILED ANALYSIS OF ACCESS (INCLUDING EMERGENCY ACCESS) TO DRIVEWAYS AND STREETS INTERSECTING THE CORRIDOR:

- WIDENING ROUTE 101 TO 4 LANES WITH A MEDIAN DIVIDER FROM ROUTE 114 TO MEETINGHOUSE ROAD.
- WIDENING ROUTE 101 TO 4 LANES WITH A MEDIAN DIVIDER FROM MEETINGHOUSE ROAD TO WALLACE ROAD.
- WIDENING ROUTE 101 TO 4 LANES WITH A MEDIAN DIVIDER FROM WALLACE ROAD TO JENKINS ROAD.
- THE PORTION(S) OF THE ABOVE 4-LANE SECTION WITH A BOULEVARD SECTION (VEGETATED CENTER AREA APPROXIMATELY 16 FEET WIDE WITH DEFINED BREAKS FOR LEFT TURNS) NEEDS TO BE SPECIFIED. OPTIONS INCLUDE WALLACE TO MEETINGHOUSE; WALLACE TO NASHUA ROAD; AND FULL LENGTH

BOULEVARD FROM 114 TO JENKINS ROAD EXCEPT FOR AREAS WHERE CROSS-SECTION IS LIMITED BY ENVIRONMENTAL OR OTHER CONSTRAINTS.

- CLOSING THE SHAW ROAD ACCESS TO ROUTE 101. CONNECTION OF THE END OF SHAW ROAD TO COLONIAL ROAD SHOULD BE CONSIDERED.

THERE WAS CONSENSUS ON:

- COUNTY ROAD CONNECTOR (ALIGNMENT TO BE DETERMINED) FROM WALLACE ROAD TO NASHUA ROAD. THERE WILL BE FURTHER DISCUSSION ON THIS OPTION IF THE PROPOSED HIGH SCHOOL IS NOT APPROVED AT TOWN MEETING.
- OVERPASS FOR LOCAL TRAFFIC, PEDESTRIANS AND BICYCLES FROM NASHUA ROAD TO BELL HILL ROAD.
- CLOSING ACCESS TO ROUTE 101 FROM LIBERTY HILL ROAD ON THE NORTH SIDE OF THE HIGHWAY (LIBERTY HILL ROAD INTERSECTION ON THE SOUTH SIDE IS NOT AFFECTED).
- RESTRICTING THE EAST END OF BEDFORD CENTER ROAD TO RIGHT TURNS ONLY.

COMMITTEE NEEDS TO FURTHER DISCUSS THE FOLLOWING OPTIONS:

- POTENTIAL TURN RESTRICTIONS OR CLOSING ACCESS AT PINECREST DRIVE, KAHLIKO LANE, AND HITCHING POST LANE.
- CONNECTIONS TO AVOID THE NEED FOR LEFT TURNS, INCLUDING HITCHING POST LANE TO BRIAR LANE AND GREY ROCK ROAD TO HARDY ROAD.

- PROPOSED CROSS-SECTION AND ACCESS TO ROUTE 101 WEST OF HARDY/JENKINS. A FOUR-LANE SECTION WOULD PROBABLY BE NEEDED IF THE JOPPA HILL ROAD INTERSECTION WERE TO BE SIGNALIZED; A TWO-LANE SECTION WOULD BE MORE VIABLE IF THERE WERE A DIAMOND INTERCHANGE AT JOPPA HILL ROAD. ALSO SUGGESTED WERE VARIATIONS WITH A ONE-WAY SERVICE ROAD PROVIDING ACCESS TO FREEDOM WAY, BEAVER LANE AND ELK DRIVE; AND A THREE-LANE SECTION WITH INTERMITTENT USE OF THE THIRD LANE FOR LEFT TURNS OR PASSING. ISSUES TO BE INVESTIGATED INCLUDE THE SIDE AND IMPACT OF A DIAMOND INTERSECTION, EFFECT ON STOWELL ROAD TRAFFIC, AND EFFECT ON POTENTIAL FUTURE DEVELOPMENT ALONG ROUTE 101.

## Bedford Route 101 Advisory Committee Meeting Notes

February 27, 2002 at the Bedford Town Offices  
7:00 – 9:30 PM

THE MEETING WAS ATTENDED BY TWELVE MEMBERS. JIM PURDY AND DENEEN CROSBY, PRINCIPAL IN CHARGE OF LANDSCAPE ARCHITECTURE FOR WALLACE FLOYD MADE A PRESENTATION ON PEDESTRIAN AND BICYCLE ISSUES, LANDSCAPE GUIDELINES FOR HIGHWAY IMPROVEMENTS AND LANDSCAPE GUIDELINES FOR COMMERCIAL DEVELOPMENT.

### PRIORITY PEDESTRIAN ROUTES:

THE PRESENTATION SHOWED PRIMARY AND SECONDARY WALKING ROUTES IN THE TOWN CENTER AREA. THE PRIMARY ROUTE CROSSES THE BELL/HILL/NASHUA ROAD OVERPASS WITH BRANCHES TO THE RECREATION AREAS AND BUSINESSES ON THE SOUTH SIDE OF ROUTE 101. THE PRIMARY ROUTE CONTINUES TO THE LIBRARY, TOWN HALL, AND OLD FIRE STATION MEETING ROOMS VIA A PROPOSED PEDESTRIAN/BIKE PATH THROUGH THE TOWN-OWNED OPEN SPACE. SECONDARY ROUTES INCLUDE PROPOSED SIDEWALKS ALONG ROUTE 101, WHICH WOULD BE PART OF ITS RECONSTRUCTION AS A BOULEVARD (SEE BELOW) AND VIA STREETS SUCH AS BEDFORD CENTER ROAD, NORTH AMHERST ROAD, AND MEETINGHOUSE ROAD, WHICH WOULD NOT BE ALTERED TO CREATE SIDEWALKS, AS THIS WOULD CHANGE HISTORIC CHARACTER AND MAY NOT BE WARRANTED BY THE NUMBER OF PEOPLE WHO WOULD USE THESE ROUTES. SIDEWALKS WOULD BE INCLUDED IN THE PROPOSED

OVERPASS, AND CONTINUE TO THE RECREATION AREAS AND THE PROPOSED HIGH SCHOOL.

THERE WAS DISCUSSION ABOUT THE NEED FOR PEDESTRIAN IMPROVEMENTS FROM THE TOWN HALL TO THE ADJACENT PARKING AND OLD FIRE STATION MEETING FACILITIES ON MEETINGHOUSE ROAD. THE CONSULTANTS WILL LOOK AT HOW THIS MIGHT BE PROVIDED WITH MINIMAL CHANGE. ANY IMPROVEMENTS WOULD TAKE PLACE ONLY ON THE TOWN HALL SIDE OF MEETINGHOUSE ROAD.

SHOULD THE PROPOSED PATH FROM BELL HILL ROAD TO THE LIBRARY BE ROUTED THROUGH THE FORMER BUTLER PROPERTY? IT WAS SUGGESTED THAT THIS MIGHT AVOID WETLANDS ON THE "TOWN COMMON" PARCEL." THE PROPOSED PATH WOULD IN ANY CASE BE INDEPENDENT OF ANY EXPANSION OF LIBRARY PARKING BUT SHOULD BE COORDINATED WITH IT.

#### PRIORITY BIKE ROUTES

THE CONSULTANTS PRESENTED A MAP WITH PRIMARY BIKE ROUTES ALONG ROUTE 101, AND FORMING A LOOP VIA WALLACE ROAD, THE PROPOSED COUNTY ROAD CONNECTOR, NASHUA ROAD AND THE PROPOSED OVERPASS. THE PRIMARY ROUTE WOULD CONTINUE TO THE LIBRARY BY THE SHARED USE PATH DISCUSSED UNDER PEDESTRIAN ROUTES. THESE PRIMARY ROUTES WOULD TAKE DIFFERENT PHYSICAL FORM, FROM SHARED USE OF THE ROADWAY ON WALLACE, COUNTY, AND NASHUA ROADS TO BIKE LANES ON THE PROPOSED OVERPASS. SEE BELOW FOR BIKE ACCOMMODATION ALONG ROUTE 101.

THERE WAS SUPPORT FOR TREATING THE EXISTING COUNTY ROAD FROM NASHUA ROAD TO MCKELVIE SCHOOL AS A PRIMARY BIKE ROUTE. THERE WAS ONCE

CONSIDERATION OF AN OFF-ROAD BIKE PATH ON AN OLD CARRIAGE ROAD BEHIND THE HOUSES ON THIS SECTION OF ROAD.

THE SEGMENT OF MEETINGHOUSE ROAD FROM THE LIBRARY TO ROUTE 101 IS NARROW AND SHOULD PROBABLY BE CONSIDERED A SECONDARY ROUTE.

A BIKE ROUTE FROM THE TOWN CENTER TO DONALD STREET HAS BEEN DISCUSSED PREVIOUSLY AND SHOULD BE INCLUDED. IT WOULD USE BEDFORD CENTER ROAD TO THE SHORT STRETCH OF PATH AT THE BEDFORD VILLAGE INN, AND CONTINUE VIA OLD BEDFORD ROAD OVER 114 TO DONALD STREET. (SEE BELOW FOR DISCUSSION OF AN OFF-ROAD SHARED USE PATH ALONG ROUTE 101.)

IT WAS ASKED WHETHER THE TOWN INCURS LIABILITY BY DESIGNATING BIKE ROUTES ON WHICH BIKES USE THE VEHICULAR WAY. THE GENERAL ANSWER IS THAT THERE IS NOT ADDITIONAL LIABILITY IF THE CHOICE OF ROUTES IS PRUDENT. "SHARE THE ROAD" SIGNS ARE SUGGESTED FOR ALL BIKE ROUTES.

ACCESS TO THE PROPOSED HIGH SCHOOL VIA CHESTNUT DRIVE SHOULD BE EXPLORED.

#### HIGHWAY LANDSCAPING

LANDSCAPED CROSS-SECTIONS WERE PRESENTED AS GUIDELINES FOR HOW THE HIGHWAY SHOULD BE DESIGNED AS 4-LANE DIVIDED, 4-LANE BOULEVARD WITH LANDSCAPED MEDIAN, ETC. IN BOTH 4-LANE CROSS SECTIONS, THERE IS A FIVE-FOOT SHOULDER ON EACH SIDE FOR USE BY BICYCLES. PLANTING STRIPS WITH STREET TREES ARE SET OFF BY CURBS, AS IS THE PLANTED 16-FOOT MEDIAN IN THE BOULEVARD SECTION. A FIVE-FOOT SIDEWALK AND 2-FOOT UTILITY STRIP IS INCLUDED OUTBOARD OF THE PLANTING STRIP ON EACH SIDE.

SIDEWALKS AND LANDSCAPING ARE CUSTOMARILY COVERED BY FEDERAL AND STATE FUNDS, ALTHOUGH SPECIFICS OF DESIGN MUST BE APPROVED BY THE FUNDING AGENCIES IN ALL PROJECTS.

AN ALTERNATIVE CROSS-SECTION WHICH IS 114 FEET WIDE WOULD REPLACE THE SIDEWALKS WITH 10-FOOT SHARED USE PATHS FOR BIKES AND PEDESTRIANS. THERE WAS DISCUSSION OF ASPECTS OF THIS OPTION, INCLUDING COST (IT COULD BE INCLUDED IN THE HIGHWAY PROJECT OR AS A FEDERAL TRANSPORTATION ENHANCEMENT PROJECT); LENGTH (COULD EXTEND THE FULL LENGTH OF ROUTE 101 IN BEDFORD; WHETHER ON BOTH SIDES VERSUS ONE SIDE OF THE HIGHWAY; AND CONNECTIONS TO SUCH PATHS. EXPERIENCED BICYCLERS WOULD GENERALLY PREFER TO RIDE WITH TRAFFIC, SO THE MULTIUSE PATH SHOULD BE VIEWED AS ACCOMMODATING CHILDREN OR LESS EXPERIENCED RIDERS. HIGHER SPEED RIDERS SHOULD PROBABLY NOT BE USING THE PATH FOR SAFETY REASONS, SO THE PATH WOULD BE IN ADDITION TO A SHOULDER DESIGNATED FOR BICYCLE USE.

CONNECTIONS TO A BICYCLE PATH MUST BE CONSIDERED. IT COULD BE USED AS AN EXTENSION OF THE ROUTE DISCUSSED ABOVE FROM THE TOWN CENTER TO DONALD STREET (WHICH IS NOT OFF-ROAD). IF INTENDED FOR CHILDREN, CROSSINGS AT MAJOR INTERSECTIONS WOULD BE A CONCERN. IF PROVIDED ONLY ON ONE SIDE OF ROUTE 101, REACHING THE PATH FROM THE OTHER SIDE OF TOWN WOULD BE A MAJOR CONCERN EXCEPT AT THE PROPOSED OVERPASS(ES). THE CONSULTANTS WILL STUDY THESE ISSUES FURTHER AND REPORT BACK.

POTENTIAL "GATEWAYS" WERE IDENTIFIED AT WALLACE ROAD, AT THE PROPOSED OVERPASS, AND AT MEETINGHOUSE ROAD. THESE AREAS WOULD USE LANDSCAPING TO SIGNAL DRIVERS THAT THEY ARE ENTERING THE TOWN CENTER, AND ALONG

WITH THE BOULEVARD CROSS-SECTION, WOULD ENCOURAGE SLOWER SPEEDS APPROPRIATE TO A DENSELY SETTLED CENTER. DESIGN WOULD NEED TO BE CONSISTENT WITH WETLAND AREAS AT MEETINGHOUSE ROAD AS WELL AS THE HISTORIC CHARACTER OF THE CENTER.

THE BOULEVARD SECTION COULD HAVE A VARIETY OF PLANTS IN THE CENTER. THE COMMITTEE SUGGESTED USING A BERM IN THE CENTER MEDIAN ALONG WITH TREES, SHRUBS, AND WILDFLOWERS AND POSSIBLY AN ATTRACTIVE FENCE SUCH AS USED AT CARLYLE PLACE. MAINTENANCE COST IS A CONCERN. GATEWAYS AND OTHER SPECIFIC AREAS MIGHT BE ADOPTED BY THE BEDFORD GARDEN CLUB OR AREA BUSINESSES. PLANT MATERIALS CAN BE SELECTED TO BE TOLERANT OF THE CONDITIONS ALONG THE HIGHWAY AND FOR LOW MAINTENANCE, BUT SOME MAINTENANCE WILL BE NEEDED. IRRIGATION IS PROBABLY TOO COSTLY TO CONSIDER. PLACING UTILITY LINES UNDERGROUND IS ALSO VERY EXPENSIVE. THE CONSULTANTS WILL REPORT BACK ON THE MAINTENANCE IMPLICATIONS OF THE GUIDELINES.

#### LANDSCAPE GUIDELINES FOR DEVELOPMENT

DENEEN CROSBY PRESENTED A FIRST CUT AT DESIGN GUIDELINES FOR DEVELOPMENT ALONG ROUTE 101. THE KEY FEATURE TO THE GUIDELINES IS DIFFERENT SITE LAYOUT GUIDELINES FOR THE COMMERCIAL AREA IN THE TOWN CENTER (INCLUDING THE SOUTHWEST CORNER PARCEL AT WALLACE ROAD) VERSUS THE MORE RURAL CHARACTER WEST OF WALLACE. IN THE TOWN CENTER, DEVELOPMENT WOULD PREFERABLY PLACE BUILDINGS CLOSER TO THE ROADWAY (30-FOOT SETBACK FROM HIGHWAY RIGHT-OF-WAY AS OPPOSED TO 60 FEET IN CURRENT ZONING) AND PARKING WOULD PREFERABLY BE BETWEEN AND BEHIND BUILDINGS

INSTEAD OF IN FRONT. PEDESTRIAN ACCESS FROM THE SIDEWALK ALONG THE HIGHWAY WOULD BE REQUIRED. THESE GUIDELINES WOULD WORK WITH THE BOULEVARD SECTION AND GATEWAYS TO DEFINE THE TOWN'S COMMERCIAL CENTER AND MAKE IT MORE PEDESTRIAN ORIENTED.

WEST OF WALLACE, THE PREFERRED DEVELOPMENT LAYOUT IS MORE TYPICAL OF RURAL AREAS. COMMERCIAL SITES WOULD HAVE PARTIAL SCREENING ALONG THE HIGHWAY (PINE TREE PLACE IS AN EXAMPLE) WITH BUILDING FRONTS 60 TO 100 FEET FROM THE HIGHWAY RIGHT-OF-WAY. THIS WOULD ALLOW PARKING LOTS IN FRONT OF BUILDINGS BUT EFFECTIVELY LIMIT THEIR SIZE.

IN BOTH PARTS OF TOWN, GUIDELINES WOULD BREAK PARKING LOTS INTO SMALLER PORTIONS (WITHOUT REDUCING OVERALL PARKING REQUIREMENTS), REQUIRE LANDSCAPING ALONG PAVEMENT EDGES, ENCOURAGE CONNECTIONS TO PARKING LOTS ON ADJACENT PROPERTY, AND PROVIDE BUFFERS ON COMMERCIAL ZONED LAND ABUTTING A RESIDENTIAL ZONE.

MORE WORK IS NEEDED TO DETERMINE WHICH GUIDELINES WOULD BE REQUIREMENTS VERSUS THOSE WHICH WOULD BE INCENTIVES.

SEVERAL COMMENTS WERE MADE BY THE COMMITTEE. PINE TREE PLACE WAS CITED AS A GOOD DEVELOPMENT EXAMPLE, PARTLY BECAUSE OF THE "CONVOLUTED" PLACEMENT OF BUILDINGS BACK FROM THE ROAD SUGGESTING A VILLAGE SETTING. IT WAS SUGGESTED THAT THE GUIDELINES SHOULD BE ABLE TO ACCOMMODATE AND SHOULD ENCOURAGE "FRONT-AND-BACK" BUILDING PLACEMENT CREATING A PEDESTRIAN AREA BETWEEN THE FRONT AND BACK BUILDINGS. (SOUTH HADLEY MA HAS THIS TYPE OF DEVELOPMENT IN ITS CENTER).

THERE WAS DISCUSSION ABOUT JUST HOW MUCH DEVELOPABLE LAND REMAINS TO UTILIZE THE GUIDELINES. JIM PURDY DISCUSSED RECENT WORK BY RKG ASSOCIATES SUGGESTING THAT THERE WILL BE CONSIDERABLE DEVELOPMENT PRESSURE ON THE ROUTE 101 CORRIDOR OVER THE NEXT 20 YEARS. THIS MEANS THAT MANY OF THE DEVELOPED PARCELS MAY REDEVELOP OVER THAT PERIOD, SO THE GUIDELINES, IF ADOPTED, WOULD BE APPLIED TO MANY DEVELOPED PARCELS AS WELL AS VACANT ONES. SECOND, THE MARKET FOR COMMERCIAL REAL ESTATE ALONG ROUTE 101 SHOULD MEAN THAT DEVELOPERS WILL NOT BE SCARED AWAY IF THE TOWN'S REGULATIONS CALL FOR HIGHER QUALITY AND LESS-TRADITIONAL SITE LAYOUTS (I.E., PARKING LOTS BETWEEN AND BEHIND BUILDINGS, LINKED PARKING WITH ABUTTERS, ETC.) THESE ISSUES WILL BE DISCUSSED FURTHER AT THE MEETINGS ON MARCH 14 AND MARCH 28.

#### IMPLEMENTATION

THERE WERE SEVERAL QUESTIONS ABOUT THE PROPORTION OF PROPOSED IMPROVEMENTS THAT WOULD BE FEDERALLY AND STATE-FUNDED. THIS INFORMATION WILL BE PRESENTED AND DISCUSSED IN UPCOMING MEETINGS.

#### FUTURE MEETINGS

UPCOMING MEETINGS WILL COVER ACCESS TO SIDE STREETS AND ABUTTING PROPERTIES AS WELL AS HIGHWAY IMPROVEMENTS WEST OF WALLACE ROAD (MARCH 7), ARCHITECTURAL DEVELOPMENT GUIDELINES (MARCH 14), AND DEVELOPMENT REGULATIONS (MARCH 28). IT WAS REQUESTED THAT PRESENTATION MATERIALS BE MAILED AND/OR EMAILED TO MEMBERS IN ADVANCE OF THE MEETINGS.

## Bedford Route 101 Advisory Committee Meeting Notes

March 14, 2002 at Bedford's Old Town Hall  
7:00 – 9:30 PM

THE MEETING WAS ATTENDED BY TEN MEMBERS PLUS SEVEN OTHER CITIZENS, INCLUDING THE TOWN MANAGER, KEITH HICKEY. JIM PURDY OF WALLACE FLOYD DESIGN GROUP AND MARTY KENNEDY AND JULIE TYSON OF VHB, FACILITATED A DISCUSSION OF HIGH PRIORITY PROJECTS ON WHICH THERE IS CONSENSUS IN THE COMMITTEE AND WHICH COULD BE CONSIDERED BY THE TOWN COUNCIL FOR APPROVAL. THE APPROVED SHORT TERM PROJECTS WILL BE ADVANCED FOR FEDERAL AND STATE FUNDING. THERE WILL BE CONTINUED DISCUSSION OF LONGER TERM ROADWAY IMPROVEMENTS WEST OF HARDY AND JENKINS ROADS AT THE NEXT MEETING.

IT SHOULD BE NOTED THAT NO FORMAL ADVISORY COMMITTEE VOTES WERE TAKEN; THE LIST OF PROJECTS REPRESENTS A CONSENSUS OF THOSE PRESENT, AND SOME COMMITTEE MEMBERS MAY HAVE RESERVATIONS OR DISAGREE WITH SOME ASPECTS.

### PRIORITY SHORT TERM PROJECTS:

THE FOLLOWING LIST OF PROJECTS WAS DISCUSSED AND RANKED FOR PRIORITY. THEY ARE LISTED IN ORDER OF THE FINAL PRIORITIES OF THE COMMITTEE. KEY POINTS OF THE DISCUSSION ARE NOTED UNDER EACH PROJECT. ORDER OF MAGNITUDE COSTS ARE GIVEN FOR PLANNING PURPOSES BUT WOULD BE REFINED DURING DESIGN OF THE PROJECTS.

### **1. SIGNALIZATION OF THE HARDY ROAD/JENKINS ROAD INTERSECTION WITH ROUTE 101**

THIS PROJECT WILL IMPROVE THE INTERSECTION AND INSTALL A TRAFFIC SIGNAL FOR BOTH SAFETY AND TRAFFIC FLOW. IT WILL CONSIST OF TWO TRAVEL LANES IN EACH DIRECTION, PLUS EASTBOUND AND WESTBOUND LEFT-TURN LANES, FOR A TOTAL WIDTH OF FIVE LANES, TAPERING BACK TO THE CURRENT 2-LANE CROSS SECTION ON EITHER SIDE OF THE INTERSECTION. HARDY AND JENKINS ROADS WILL REMAIN AT THEIR CURRENT WIDTH. CONCEPTUAL COST IS \$2 MILLION. FEDERAL FUNDING (80%) IS POSSIBLE.

KEY ISSUES TO BE ADDRESSED: EXISTING ROUTE 101 RIGHT-OF-WAY APPEARS TO BE ADEQUATE WITHOUT ACQUISITION OF ADDITIONAL LAND, BUT IN DESIGN IT MAY BE NECESSARY OR DESIRABLE TO PROVIDE AN ALTERNATIVE DRIVEWAY FOR THE KENNEL BUSINESS WHICH IS LOCATED VERY CLOSE TO THE HIGHWAY ON THE NORTHEAST CORNER. THERE IS ALSO AN OPPORTUNITY TO PROVIDE A REAR SERVICE ROAD CONNECTING BEDFORD FIELDS AND ADJACENT BUSINESSES TO HARDY ROAD, IMPROVING ACCESS MANAGEMENT AND PROVIDING SAFER EGRESS FOR THESE BUSINESSES. (BUSINESSES WOULD BENEFIT FROM THE TRAFFIC SIGNAL IN ANY CASE.) ONE MEMBER STATED THAT LAND SHOULD NOT BE TAKEN FROM PRIVATE OWNERS FOR THIS PURPOSE.

## **2. OVERPASS FROM BELL HILL ROAD TO NASHUA ROAD AND CONNECTOR FROM WALLACE ROAD TO NASHUA ROAD.**

THIS PROJECT WOULD PROVIDE A LOCAL CONNECTION BETWEEN THE NORTH AND SOUTH SIDES OF THE TOWN CENTER, ACCOMMODATING PEDESTRIANS AND BICYCLES AS WELL

AS VEHICLES. THERE WOULD BE NO ACCESS TO ROUTE 101 AT THE OVERPASS; INSTEAD, A CONNECTOR ROAD WOULD PROVIDE A PATH TO AND FROM THE WALLACE ROAD TRAFFIC SIGNAL. THE TWO ELEMENTS IN THIS PROJECT (OVERPASS AND CONNECTOR ROAD) ARE NECESSARY, AND THE OVERPASS SHOULD NOT BE IMPLEMENTED WITHOUT THE CONNECTOR ROAD.

DISCUSSION CONSIDERED THE OPTIONS OF AN OVERPASS WITH CONNECTIONS TWO ROUTE 101 AS WELL AS THE NECESSITY TO INCLUDE THE CONNECTOR ROAD AS AN INTEGRAL PART OF THE PROJECT. CONNECTION TO THE HIGHWAY AT THIS POINT IS CURRENTLY A PROBLEM FOR BOTH SAFETY AND TRAFFIC FLOW; A TRAFFIC SIGNAL COULD NOT BE USED HERE OWING TO THE CLOSE SPACING OF THE WALLACE ROAD AND MEETINGHOUSE ROAD SIGNALS. ALSO, AN OVERPASS WITH CONNECTIONS WOULD HAVE A VERY LARGE FOOTPRINT REQUIRING SUBSTANTIAL TAKINGS. WITH THE CONNECTOR ROAD, ACCESS MANAGEMENT ON ROUTE 101 IS IMPROVED BY ROUTING TRAFFIC TO SIGNALIZED INTERSECTIONS; WITHOUT THE CONNECTOR, HIGHWAY-BOUND TRIPS WOULD BE ROUTED THROUGH THE HISTORIC TOWN CENTER. IT WAS NOTED BY THE CONSULTANTS THAT THE NEED FOR THE CONNECTOR ROAD ELEMENT IS INDEPENDENT OF THE PROPOSAL FOR A HIGH SCHOOL IN THIS AREA. COST IS ON THE ORDER OF \$4 MILLION.

ISSUES: APPROXIMATELY 6 ACRES OF LAND WOULD NEED TO BE ACQUIRED FOR THE OVERPASS, PRIMARILY ON THE SOUTHEAST QUADRANT OF THE EXISTING INTERSECTION AS WELL AS SOME WIDENING OF THE BELL HILL ROAD RIGHT OF WAY FROM ROUTE 101 TO NORTH AMHERST ROAD. NO HOUSES OR BUSINESSES WOULD BE TAKEN, AND ACCESS FOR THE BUSINESSES WITH DRIVEWAYS ON BELL HILL ROAD WOULD BE MODIFIED BUT PRESERVED. THE OVERPASS WOULD BE A MAJOR LINK IN THE TOWN

CENTER PEDESTRIAN SYSTEM AS DISCUSSED AT THE PREVIOUS MEETING. THE ALIGNMENT OF THE CONNECTOR ROAD COULD FOLLOW THE OLD CLASS 6 ROAD WHICH WAS HISTORICALLY PART OF COUNTY ROAD, BUT OTHER ALIGNMENTS ARE ALSO POSSIBLE. LAND WOULD NEED TO BE ACQUIRED BUT NO HOUSES TAKEN. THE CONNECTOR ROAD WOULD NEED TO MAKE A WETLAND/STREAM CROSSING AND WETLAND PERMITS MAY ALSO BE NEEDED TO PROVIDE ACCESS TO THE OFFICES ON BELL HILL ROAD, BUT THE OVERALL WETLAND IMPACTS ARE RELATIVELY SMALL.

### 3. CENTER LEFT-TURN LANES

THIS PROJECT WOULD INCLUDE THREE CENTER LEFT TURN LANES:

- FROM GAGE GIRLS ROAD TO ELK DRIVE
- WEST OF WALLACE ROAD TO KAHLIKO LANE
- AT TWIN BROOK LANE

THE PROJECT WOULD PROVIDE IMMEDIATE SHORT-TERM SAFETY IMPROVEMENTS WHERE TRAFFIC ENTERS AND LEAVES SIDE STREETS AND BUSINESSES. PAVEMENT WOULD BE WIDENED TO ACHIEVE THE THREE LANE SECTION; PAVED SHOULDERS WOULD CONTINUE TO BE PROVIDED. THE APPROXIMATE COST FOR ALL THREE ELEMENTS WOULD BE ON THE ORDER OF \$1 MILLION.

ISSUES: THIS PROJECT LED TO DISCUSSION OF VEHICULAR SPEEDS WEST OF WALLACE ROAD AND THE ADDITIONAL ACTION ON SPEED CONTROL DESCRIBED BELOW. RIGHT OF WAY APPEARS ADEQUATE TO WIDEN FOR THE CENTER TURN LANE. NO WETLAND IMPACTS ARE ANTICIPATED. THIS PROJECT SHOULD BE CONSIDERED FOR STATE FUNDING.

#### **4. IMPROVEMENTS TO THE MEETINGHOUSE ROAD INTERSECTION**

THIS PROJECT WOULD UPGRADE THE EXISTING SIGNALIZED INTERSECTION TO MORE FUNCTIONAL DESIGN WITH THE SAME TYPE OF 5-LANE CROSS-SECTION DISCUSSED ABOVE FOR HARDY AND JENKINS ROADS. THERE WOULD BE NO WIDENING OF MEETINGHOUSE ROAD. THE IMPROVED INTERSECTION WOULD DO MUCH TO REDUCE CURRENT CONGESTION ON ROUTE 101 AND THEREBY REDUCE THE HIGH VOLUME OF SHORT-CUTTING THROUGH THE HISTORIC TOWN CENTER. COST WOULD BE ON THE ORDER OF \$2 MILLION, WHICH COULD BE PART OF \$4.87 MILLION CURRENTLY IN THE NEW HAMPSHIRE 10-YEAR PLAN FOR IMPROVEMENTS BETWEEN ROUTE 114 AND WALLACE ROAD.

ISSUES: THE INTERSECTION CURRENTLY IS HIGHER THAN SURROUNDING LAND IN ALL FOUR QUADRANTS, WHERE WETLANDS ARE PRESENT. THE HIGHWAY RIGHT OF WAY IS WIDE ENOUGH TO CONTAIN THE 5-LANE CROSS SECTION BUT DESIGN IS NECESSARY TO DETERMINE IF ANY EASEMENTS WOULD BE NECESSARY FOR SIDE-SLOPES. ALSO DEPENDING ON DESIGN, THERE MAY BE SOME MARGINAL IMPACT TO THE WETLANDS, AND PERMITS WILL BE REQUIRED.

#### **5. IMPROVEMENT OF BOTTLENECK AT THE ROUTE 101/114 INTERSECTION.**

THIS PROJECT WOULD EXTEND THE MERGE OF THE TWO WESTBOUND LANES OF ROUTE 101 TO JUST BEYOND THE OLD BEDFORD ROAD INTERSECTION, SUBSTANTIALLY IMPROVING TRAFFIC FLOW. COST WOULD BE ON THE ORDER OF \$500 THOUSAND.

ISSUES: THE IMPROVEMENT REMEDIES A SHORTCOMING IN THE DESIGN OF THE 101/114 INTERSECTION. IT APPEARS TO BE A WORKABLE SHORT-TERM SOLUTION, EVEN WITH ADDED TRAFFIC FROM THE NEARBY PROPOSED DEVELOPMENT. IN THE

LONGER TERM, THE COMMITTEE IS DISCUSSING THE RECONSTRUCTION OF THE ENTIRE ROUTE 101/114 INTERSECTION. MARTY KENNEDY SHOWED A SKETCH OF A CONCEPT FOR GRADE-SEPARATING THE ROUTE 101 THROUGH MOVEMENTS FROM THE ROUTE 114 AND BOYNTON STREET MOVEMENTS; THIS WILL BE DISCUSSED MORE FULLY AT THE NEXT MEETING.

### **SAFETY AND CONTROL OF SPEEDS**

THERE WAS SUPPORT IN THE COMMITTEE FOR THE IDEA OF REDUCING THE SPEED LIMIT TO 40 MPH IN THE AREA WEST OF THE WEATHERVANE RESTAURANT WHICH IS CURRENTLY POSTED AT 50 MPH. SEVERAL PERSONS POINTED OUT THAT THERE ARE MANY SCHOOL BUS STOPS IN THIS AREA, AND THAT MOVEMENTS INTO AND OUT OF SIDE STREETS AND BUSINESS DRIVEWAYS ARE HAZARDOUS OWING TO THE HIGH SPEED OF TRAFFIC ON THE HIGHWAY. THE CONSENSUS OF THE COMMITTEE WAS THAT BOTH THIS SPEED LIMIT REDUCTION AND MORE ENFORCEMENT OF THE SPEED LIMIT SHOULD BE IMPLEMENTED BY THE TOWN. THIS PROPOSAL WILL BE ADVANCED TO THE TOWN TRAFFIC SAFETY COMMITTEE FOR CONSIDERATION.

IT WAS ALSO SUGGESTED THAT DRIVER AWARENESS SIGNAGE BE CONSIDERED TO ALERT MOTORISTS TO THE COMMERCIAL AREA FROM GAGE GIRLS TO ELK LANE AND THE VEHICLES ENTERING AND LEAVING THE HIGHWAY. OTHER SAFETY SIGNAGE MIGHT ASK DRIVERS TO SLOW DOWN, USE THEIR HEADLIGHTS FOR SAFETY, AND REFRAIN FROM HAND-HELD CELL PHONE USE.

ATTENDANCE:

**MEMBERS**

RYK BULLOCK  
SANDRA CHANDLER  
ANDRE GARRON  
BILL GREINER  
KAREN GRIMMETT  
NANCY LARSON  
MATT MCLAUGHLIN  
ROBYN POLLOCK  
ELAINE TEFFT  
BILL WALSH  
KAREN WHITE

**OTHERS**

JEFF BELANGER  
MARK FOUGERE  
KEITH HICKEY  
DEE DEE O'ROURKE  
BARBARA TUFTS  
SUSAN TUFTS-MOORE  
SUZANNE WHITTAKER  
JIM PURDY, WFDG  
MARTY KENNEDY, VHB  
JULIE TYSON, VHB

9/15/08 1:43 PM

B BEDFORD ADV. COMMITTEE NOTES 020314

## Bedford Route 101 Advisory Committee Meeting Notes

March 26, 2002 at Bedford's Old Town Hall  
7:00 – 9:30 PM

THE MEETING WAS ATTENDED BY THIRTEEN MEMBERS PLUS EIGHT OTHER CITIZENS, INCLUDING MONI SHARMA, EXECUTIVE DIRECTOR OF SOUTHERN NEW HAMPSHIRE PLANNING COMMISSION. A PRESENTATION WAS MADE BY MARTY KENNEDY OF VHB ON ROADWAY IMPROVEMENTS WEST OF HARDY AND JENKINS ROAD, INCLUDING A POTENTIAL DIAMOND INTERCHANGE AT JOPPA HILL ROAD AND MEASURES TO MANAGE ACCESS AT SIDE STREETS; JIM PURDY OF WALLACE FLOYD DESIGN GROUP FACILITATED THE DISCUSSION. THERE WILL BE CONTINUED DISCUSSION OF CORRIDOR ROADWAY IMPROVEMENTS AT THE MEETING ON THURSDAY APRIL 11 FOLLOWING DISCUSSION OF ARCHITECTURAL AND SIGNAGE GUIDELINES FOR COMMERCIAL DEVELOPMENT.

### **FUTURE TRAFFIC VOLUMES**

MARTY PRESENTED PROJECTED TRAFFIC VOLUMES ON ROADWAY SEGMENTS FROM JOPPA HILL ROAD TO ROUTE 114. TRAFFIC VOLUMES ARE EXPECTED TO INCREASE 40 PERCENT OVER 20 YEARS, INCREASING SEGMENT VOLUMES (I.E., BETWEEN INTERSECTIONS) TO 2000 VEHICLES PER PEAK HOUR EAST OF WALLACE ROAD AND OVER 1700 VEHICLES PER HOUR BETWEEN WALLACE AND HARDY/JENKINS. WEST OF HARDY/JENKINS, PROJECTED PEAK HOUR TRAFFIC WOULD BE CLOSER TO 1500 VEHICLES PER HOUR. THESE VOLUMES SUGGEST THAT FOUR LANES (2 IN EACH DIRECTION) ARE NEEDED TO ACCOMMODATE TRAFFIC EAST OF HARDY/JENKINS IN

ORDER TO AVOID HEAVY CONGESTION AND DIVERSION OF TRAFFIC TO LOCAL RESIDENTIAL STREETS. WEST OF HARDY/JENKINS, IT IS A CLOSER CALL WHETHER TWO LANES (ONE IN EACH DIRECTION) WILL BE ADEQUATE. IT IS POSSIBLE THAT WITH AN INTERCHANGE AT JOPPA HILL ROAD AND GOOD ACCESS MANAGEMENT ON SIDE STREETS AND DRIVEWAYS, TWO LANES WILL BE SUFFICIENT. WITH A TRAFFIC SIGNAL AND/OR LESS EFFECTIVE ACCESS MANAGEMENT, FOUR LANES WOULD PROBABLY BE NECESSARY.

THESE PROJECTIONS ARE CONSISTENT WITH DEVELOPMENT ALONG THE CORRIDOR, SUCH AS THE COMMERCIAL DEVELOPMENT PROPOSED FOR THE PARCEL BETWEEN OLD BEDFORD ROAD AND ROUTE 114, (ALTHOUGH CLOSE TO THAT SITE, PROJECT -SPECIFIC TRAFFIC ANALYSIS WOULD BE USED TO EVALUATE INTERSECTIONS).

#### **JOPPA HILL/ROUTE 101**

A FOUR-WAY DIAMOND INTERCHANGE WAS PRESENTED AND DISCUSSED. THIS OPTION WOULD PROBABLY BE NECESSARY TO MAINTAIN A TWO-LANE CROSS-SECTION FOR ROUTE 101 WEST OF HARDY/JENKINS. THE LAND AREA NEEDED FOR SUCH AN INTERCHANGE CAN'T BE DETERMINED WITHOUT PRELIMINARY DESIGN, SO A WORST-CASE WAS SHOWN. THE AREA OCCUPIED BY THE INTERCHANGE AND DISTANCE FROM NEARBY RESIDENCES WILL BE PROVIDED BY THE CONSULTANTS.

#### **COMMENTS:**

- THE OVERPASS WHICH IS PART OF THE DIAMOND INTERCHANGE WOULD CONNECT THE NORTH AND SOUTH SIDES OF TOWN FOR BICYCLE RIDERS, WHO CURRENTLY DON'T CROSS ROUTE 101 FOR REASONS OF SAFETY. THIS SIMILAR TO THE

OVERPASS PROPOSED FOR THE TOWN CENTER, ALTHOUGH THE USERS AT JOPPA HILL ROAD WOULD BE MOSTLY ON BICYCLES.

- A TRAFFIC SIGNAL AT THIS INTERSECTION WOULD NEED TO BE FIVE LANES WIDE, SUBSTANTIALLY EXPANDING THE CURRENT INTERSECTION. A TRAFFIC SIGNAL WOULD HELP TO MODERATE SPEEDS ON ROUTE 101 AND WOULD CREATE GAPS IN TRAFFIC MAKING IT EASIER TO ENTER FROM SIDE STREETS LIKE FREEDOM WAY. A SIGNAL WOULD RESULT IN TRAFFIC ACCELERATING FROM A STANDSTILL, WHICH WOULD BE A SOURCE OF NOISE IMPACTS.
- OPTIONS INCLUDING A HALF-DIAMOND AND HALF-CLOVERLEAF INTERCHANGES WERE DISCUSSED AS WAYS TO REDUCE THE SIZE OF THE INTERCHANGE WHILE PROVIDING CONTROLLED ACCESS AT JOPPA HILL ROAD AND PERMITTING WESTBOUND VEHICLES TO REVERSE DIRECTION (WHICH MAKES ACCESS MANAGEMENT ON SIDE STREETS MORE FEASIBLE.) MARTY WILL DEVELOP SOME INTERCHANGE VARIATIONS FOR THE NEXT MEETING ON ROADWAY IMPROVEMENTS IN MID-APRIL.
- THE POSSIBILITY OF A DIAMOND INTERCHANGE AT HARDY/JENKINS ROADS WAS BRIEFLY DISCUSSED; TAKINGS OF SEVERAL BUSINESSES WOULD BE REQUIRED, HOWEVER, AND THE IDEA DID NOT HAVE MUCH SUPPORT AMONG THOSE PRESENT.

## ACCESS MANAGEMENT

SCHEMES FOR THE GAGE GIRLS ROAD TO ELK DRIVE, AND IN THE KAHLIKO LANE WERE PRESENTED AND DISCUSSED.

THE SCHEME PRESENTED WOULD PROVIDE FOR LEFT TURNS INTO FREEDOM WAY, BEAVER LANE AND ELK DRIVE BUT A MEDIAN WOULD BE DESIGNED TO RESTRICT LEFT TURNS OUT FROM THESE STREETS. SIMILARLY, LEFT TURNS INTO GAGE GIRLS ROAD

AND THE ADJACENT BUSINESSES WOULD BE PERMITTED BUT LEFT TURNS OUT PROHIBITED. CONNECTIONS BETWEEN BUSINESS PARKING LOTS WOULD IMPROVE ACCESS MANAGEMENT HERE. IN THIS AREA, THE RIGHT-OF-WAY IS ONLY 60 FEET WIDE AND SHOULD BE EXPANDED; HOWEVER, NO HOUSES OR BUSINESSES WOULD NEED TO BE TAKEN, ONLY A STRIP OF LAND.

A SIMILAR SCHEME WAS PRESENTED FOR KAHLIKO LANE AND THE BETHANY CHURCH AND ADJACENT BUSINESSES.

THESE SCHEMES WOULD SUBSTANTIALLY IMPROVE SAFETY FOR THE RESIDENTS OF THESE STREETS AND BUSINESS PATRONS AND CHURCH MEMBERS; HOWEVER, THE OUTBOUND LEFT TURN RESTRICTIONS WOULD REQUIRE PEOPLE TO DRIVE TO JOPPA HILL ROAD, HARDY/JENKINS OR WALLACE ROAD TO REVERSE DIRECTION.

COMMENTS:

- IS RESTRICTING TURNS FROM AN OWNER'S CURB CUT A TAKING? IT HAS BEEN ESTABLISHED THROUGH LITIGATION THAT IT IS NOT A TAKING AS LONG AS "REASONABLE ACCESS" IS MAINTAINED. THIS HAS BEEN DONE SUCCESSFULLY ON ROUTE 101A WHERE A MEDIAN WAS ADDED. "REASONABLE ACCESS" DOES NOT HAVE A PRECISE DEFINITION, BUT REQUIRING DIVERSIONS OF MORE THAN 1-2 MILES IS PROBABLY TOO FAR TO BE DEEMED "REASONABLE".
- RESIDENTIAL AND COMMERCIAL PROPERTIES SHOULD BE TREATED EQUITABLY.
- MANY RESIDENTS OF THE ELK DRIVE/BEAVER LANE NEIGHBORHOOD WOULD SUPPORT THE TURN RESTRICTIONS FOR REASONS OF SAFETY. SIMILARLY, RESTRICTING TURNS OUT OF HUNTERS ROAD WOULD PROBABLY BE SUPPORTED.

- SIGNAGE WOULD NEED TO BE PROVIDED FOR COMMERCIAL USES IF DIRECT ACCESS INTO THE BUSINESS FROM A LEFT-TURN LANE IS NOT PROVIDED.
- WHO WOULD PAY FOR LINKING PARKING LOTS? ARE THESE CONNECTIONS NECESSARY OR MERELY DESIRABLE FOR THE SCHEMES TO WORK? THESE ISSUES WILL BE ADDRESSED BY THE CONSULTANTS.
- CONNECTING GAGE GIRLS ROAD WITH STOWELL ROAD PARALLEL TO ROUTE 101 SHOULD BE CONSIDERED, POSSIBLY USING AN OLD SNOW-MOBILE PATH. EXTENDING COUNTY ROAD TO COVENANT WAY MIGHT ALSO BE HELPFUL.
- A PARALLEL CONNECTOR-DISTRIBUTOR ROAD FROM GAGE GIRLS TO ELK DRIVE WOULD REQUIRE A VERY LARGE WIDENING OF RIGHT-OF WAY AND WOULD PROBABLY TAKE SOME HOUSES.
- THERE SHOULD BE CRITERIA FOR RESTRICTING ACCESS IN CASES WHERE THERE IS NO "BACK DOOR" ROUTE, I.E., WHERE PEOPLE WOULD HAVE TO REVERSE DIRECTION BY DRIVING ON ROUTE 101 TO THE NEXT SIGNALIZED INTERSECTION OR INTERCHANGE.
- SCHOOL BUS STOPS ARE A SERIOUS ISSUE. THE BUS CURRENTLY STOPS ON ROUTE 101 AT FREEDOM WAY AND NEAR THE MOTEL ON THE EASTBOUND SIDE, REQUIRING TRAFFIC TO STOP. THE CONSULTANTS WILL LOOK INTO OPTIONS TO IMPROVE THE SAFETY OF THESE STOPS.
- WOULD LEFT TURNS OUT OF TWIN BROOK LANE BE RESTRICTED? THIS MIGHT BE OK IF ONE COULD REVERSE DIRECTION AT JOPPA HILL ROAD.
- SPEED REDUCTION ON ROUTE 101 WHERE CURRENTLY POSTED AT 50 MPH IS A PRIORITY FOR MANY RESIDENTS. ROUTE 25 NEAR MORRISTOWN NJ WAS CITED

AS AN EXAMPLE OF A SIMILAR HIGHWAY POSTED AT 35 MPH WHICH APPEARS TO WORK.

## **OTHER ISSUES**

A RESIDENT OF KENNEDY DRIVE EXPRESSED CONCERN ABOUT THE PROPOSED "COUNTY ROAD" CONNECTOR FROM NASHUA TO WALLACE ROAD. THERE ARE A NUMBER OF ALIGNMENT OPTIONS FOR THIS CONNECTOR WHICH MUST BE EVALUATED DURING DESIGN BUT APPEAR TO BE POSSIBLE. THE OLD CLASS VI ROAD IS NOT THE ONLY ALIGNMENT, AND DESIGNERS WILL WORK MINIMIZE WETLAND AND NEIGHBORHOOD IMPACTS. THE CONNECTOR ROAD WOULD NOT BE TIED INTO KENNEDY DRIVE.

ELAINE TEFFT REQUESTED THAT A LIST OF THOSE ATTENDING THE MEETINGS BE INCLUDED IN THE MEETING NOTES. SHE ALSO ASKED THAT IT BE CLEARLY STATED THAT NO FORMAL COMMITTEE VOTES TOOK PLACE AT THE MARCH 14 MEETING. SHE WOULD LIKE MORE DETAILED INFORMATION ON TAKINGS REQUIRED AT LOCATIONS LIKE HARDY ROAD AND NASHUA ROAD. THE STATUS OF SHARED BUSINESS ACCESS SHOULD BE CLEARLY PRESENTED, INCLUDING WHETHER THESE OPTIONS ARE VOLUNTARY AND WHO PAYS FOR THEM. SHE CONTINUES TO ASK THAT PRESENTATION MATERIAL BE SENT TO COMMITTEE MEMBERS IN ADVANCE.

## **ATTENDANCE**

### **MEMBERS**

RYK BULLOCK  
TRACEY CARRIER  
SANDY CHANDLER  
RHONDA FARRINGTON

BILL GREINER  
KAREN GRIMMETT  
JOHN JACOBSON  
NANCY LARSON  
MATT MCLAUGHLIN  
ELAINE TEFFT  
BILL WALSH  
KAREN WHITE  
LARRY ZINER

OTHERS

LISA & ALAN BERGER  
MARK FOUGERE  
DEE DEE O'ROURKE  
MONI SHARMA  
BEVERLY THOMAS  
SUSAN TUFTS-MOORE  
SUZANNE WHITTAKER  
MARTY KENNEDY, VHB  
JIM PURDY WFDG

## Bedford Route 101 Advisory Committee Meeting Notes

April 11, 2002 at the Old Fire Station Meeting Room  
7:00 – 9:30 PM

THE MEETING WAS ATTENDED BY FOURTEEN MEMBERS PLUS FOUR OTHER CITIZENS, INCLUDING MONI SHARMA, EXECUTIVE DIRECTOR OF SOUTHERN NEW HAMPSHIRE PLANNING COMMISSION. A PRESENTATION WAS MADE BY DAVID BURSON OF WALLACE FLOYD ON ARCHITECTURAL DESIGN GUIDELINES FOR THE CORRIDOR; MARTY KENNEDY OF VHB PRESENTED OPTIONS FOR ROADWAY IMPROVEMENTS WEST OF HARDY AND JENKINS ROAD; JIM PURDY OF WALLACE FLOYD DESIGN GROUP FACILITATED THE DISCUSSION. THERE WILL BE CONTINUED DISCUSSION OF CORRIDOR ROADWAY IMPROVEMENTS AT THE MEETING ON THURSDAY MAY 2 WHERE THE COMMITTEE WILL DISCUSS ROADWAY IMPROVEMENTS EAST OF WALLACE ROAD AND WRAP UP ALL OTHER OUTSTANDING ISSUES.

### ARCHITECTURAL GUIDELINES

DAVID BURSON, AN ARCHITECTURAL PRINCIPAL AT WALLACE FLOYD PRESENTED A SERIES OF ILLUSTRATED DESIGN GUIDELINES FOR NEW COMMERCIAL BUILDINGS ON ROUTE 101, THEIR LIGHTING, AND SIGNAGE. IN BRIEF SUMMARY: THE GENERAL INTENT IS TO REDUCE THE APPARENT SIZE AND ACHIEVE A PEDESTRIAN SCALE OF COMMERCIAL BUILDINGS BY ARTICULATING THEM IN SMALLER BUILDING MASSES; ENTRANCES SHOULD BE LOCATED TO ACCOMMODATE PEDESTRIANS FROM THE SIDEWALK AND PARKING LOT; STYLES, MATERIALS, AND COLORS SHOULD BE COMPATIBLE WITH SURROUNDING BUILDINGS AND THE ARCHITECTURE OF THE HISTORIC TOWN CENTER;

LIGHTING SHOULD BE IN PROPORTION TO THE BUILDING AND BE SHIELDED TO AVOID GLARE; SIGNAGE SHOULD BE COMPATIBLE WITH ARCHITECTURE AND LIMITED IN SIZE AND HEIGHT.

COMMENTS ON GUIDELINES:

- WORDS LIKE "COMPATIBLE" AND "SIMILAR TO CONTEXT" ARE VAGUE.
- IS THERE ONE SET OF GUIDELINES FOR THE WHOLE CORRIDOR IN BEDFORD? YES.
- BEDFORD VILLAGE SHOPS ARE AN EXAMPLE OF BREAKING UP MASSING INTO SMALLER UNITS.
- COMMERCIAL BUILDINGS ON THE SAME LOT SHOULD BE CONNECTED, NOT SPREAD OUT.
- NEW ENGLAND VILLAGES ARE TYPICALLY DIVERSE IN STYLE AND BUILDING PLACEMENT. WHY NOT PERMIT BUILDINGS TO BE SKEWED TO THE ROAD RATHER THAN FACING IT DIRECTLY.
- EXAMPLES OF DESIGN GUIDELINES CAN BE SEEN IN JUPITER FL AND FREEPORT ME. CHARLOTTE NC WAS ALSO CITED AS A CITY WITH CREATIVE COMMERCIAL DESIGN.
- THE CREST OF THE HILL ON ROUTE 101 COULD BE THOUGHT OF AS THE WATERSHED BETWEEN THE CENTER OF TOWN AND THE WESTERN PORTION.
- THERE WAS DISCUSSION ON THE RELATIVE MERITS OF ARCHITECTURAL REVIEW BY THE PLANNING BOARD AS OPPOSED TO A NEW BOARD CREATED FOR THAT PURPOSE.

- THERE WAS DISCUSSION ABOUT A CENTRAL ISSUE IN ANY DESIGN GUIDELINES, NAMELY HOW TIGHT OR LOOSE SHOULD THEY BE. EXAMPLES WERE GIVEN OF GOOD LOOKING BUILDINGS THAT MIGHT NOT MEET THE DRAFT GUIDELINES WITH REGARD TO MATERIALS, AND OF POOR BUILDINGS THAT WERE REVIEWED BY THE TOWN FOR APPROPRIATENESS IN THE HISTORIC DISTRICT.
- THE GUIDELINES WOULD BE WRITTEN SO AS TO AVOID GENERATING VARIANCE REQUESTS TO THE ZBA.
- SHOULD BUILDING HEIGHT BE RELATED TO SETBACK? SHOULD ROOF LINES AND ROOFING MATERIAL BE ADDRESSED? SOME MANUFACTURED MATERIALS ARE OF GOOD QUALITY AND APPEARANCE AND THE GUIDELINES NEED TO DEFINE THESE BETTER.
- THE LIGHTING GUIDELINES SHOULD REQUIRE METAL HALIDE LAMPS RATHER THAN SODIUM VAPOR LAMPS, WHICH EMIT AN ORANGE-TINTED LIGHT.
- UTILITIES SHOULD BE REQUIRED TO BE PLACED UNDERGROUND.

## ROADWAY OPTIONS

MARTY PRESENTED OPTIONS FOR THE JOPPA HILL INTERSECTION AND THE ROADWAY CROSS SECTION BETWEEN JOPPA HILL RD AND HARDY/JENKINS ROADS.

OPTIONS PRESENTED:

- SIGNALIZED INTERSECTION WITH 5 LANE CROSS-SECTION (LIKE HARDY/JENKINS) AND A 4-LANE CROSS SECTION ON THE ROADWAY SEGMENT TO THE EAST WITH MEDIAN AND LEFT TURN LANES AT KEY INTERSECTIONS.

- TIGHT DIAMOND INTERCHANGE, 2 LANE CROSS-SECTION EAST TO HARDY/JENKINS WITH MEDIAN AND LEFT TURN LANES AT KEY INTERSECTIONS
- COMBINATION OF TIGHT DIAMOND EASTBOUND ON- AND OFF-RAMPS, AND A LOOP RAMP FOR WESTBOUND ON- AND OFF-MOVEMENTS; TWO LANE CROSS-SECTION EAST TO HARDY/JENKINS WITH LEFT TURN LANES AS ABOVE.
- OVERPASS AT JOPPA HILL RD/STOWELL ROAD WITH RELOCATED SIGNALIZED INTERSECTION TO THE EAST AND 4 LANE CROSS-SECTION WITH MEDIAN AND LEFT TURN LANES EAST TO HARDY/JENKINS.

AFTER DISCUSSION, ALTHOUGH NO FORMAL VOTE WAS TAKEN, THE STRONG PREFERENCE OF THOSE PRESENT WAS THE FIRST OPTION, WITH THE POTENTIAL ADDITION OF A JUG-HANDLE ALLOWING LARGE WESTBOUND VEHICLES TO REVERSE DIRECTION MORE EASILY. VHB WILL STUDY THIS VARIATION ON THE SIGNALIZED INTERSECTION.

THERE WAS ALSO A PRESENTATION AND CONSIDERABLE DISCUSSION OF OPTIONS TO MANAGE ACCESS AT STREETS AND DRIVEWAYS ENTERING ROUTE 101. THESE OPTIONS ARE FOR THE MOST PART INDEPENDENT FROM THE CHOICE OF THE OPTION AT JOPPA HILL ROAD, ALL OF WHICH ALLOW VEHICLES TO REVERSE DIRECTION. IN GENERAL, LEFT TURNS CAN BE PROVIDED INTO SELECTED LOCATIONS, BUT THESE LOCATIONS NEED TO BE MINIMIZED FOR THE SAKE OF TRAFFIC FLOW. LEFT TURNS OUT ONTO THE HIGHWAY CANNOT BE SAFELY PROVIDED WITH THE ANTICIPATED VOLUMES OF TRAFFIC, EXCEPT AT SIGNALIZED INTERSECTIONS. THIS IS AN INCONVENIENCE TO PEOPLE WHO MAKE THESE OUTBOUND LEFT TURNS, BUT THEY ARE ALSO THE ONES WHO BENEFIT MOST IN TERMS OF RISK OF SERIOUS ACCIDENTS.

### COMMENTS ON ACCESS MANAGEMENT:

- WHAT IS "REASONABLE INCONVENIENCE" IN THE CONTEXT OF WHEN A PROPERTY MUST BE TAKEN BECAUSE ITS ACCESS BECOMES UNREASONABLE? THERE IS NO PRECISE DEFINITION, BUT THERE IS PRECEDENT FOR DIVERSIONS OF 1 TO 1.5 MILES BEING DEEMED REASONABLE.
- STEVE WORTHEN, WHO OWNS AND OPERATES THE MOBIL STATION NEAR GAGE GIRLS RD SAID HE NEEDS DIRECT ACCESS FOR BOTH CUSTOMERS AND GASOLINE TANKERS. CONNECTION VIA THE ADJOINING BUSINESS'S PARKING LOT IS NOT VIABLE FOR TANKERS AND THE GAP IN THE MEDIAN SHOULD BE MOVED TO SERVE THE MOBIL STATION, WITH AN OFF-ROAD CONNECTION TO ADJOINING PROPERTY. THE IMPACTS OF ACCESS LIMITATIONS ARE MUCH MORE SERIOUS FOR A GAS STATION THAN OTHER TYPES OF DESTINATION BUSINESSES, AND HE NEEDS LEFT TURNS BOTH IN AND OUT OF THE STATION.
- OUTBOUND MOVEMENTS FROM GAGE GIRLS RD NEED TO BE ACCOMMODATED. A FRONTAGE ROAD TO STOWELL RD SHOULD BE INVESTIGATED. THERE IS ALSO AN EXISTING ROUTE TO STOWELL VIA BEALS RD, WHICH MANY RESIDENTS OF THE AREA ALREADY USE.
- THERE WAS DISCUSSION OF MOVING THE SIGNAL TO ELK DRIVE FROM JOPPA HILL ROAD, WHERE IT COULD SERVE BOTH THE NEIGHBORHOOD AND BUSINESSES. KAREN GRIMMETT FELT THAT ELK DRIVE IS TOO NARROW AND DENSELY SETTLED TO BE A SUITABLE COLLECTOR STREET. IT WAS NOTED ALSO THAT MUCH OF THE UNDEVELOPED LAND IN THE NORTHWEST PART OF BEDFORD WOULD NATURALLY USE JOPPA HILL ROAD FOR ACCESS TO ROUTE 101.

- IT WAS ALSO SUGGESTED THAT A FRONTAGE ROAD NORTH OF ROUTE 101 SERVING FREEDOM WAY, BEAVER LANE AND ELK DRIVE BE INVESTIGATED.
- SCHOOL BUS ROUTES ARE DESIGNED TO AVOID LEFT TURNS, BUT THE CHOSEN OPTION SHOULD PERMIT THE OPTION OF FUTURE ROUTES THAT REQUIRE THE BUS TO CHANGE DIRECTION AT JOPPA HILL ROAD. (THE SIGNALIZED INTERSECTION AS PRESENTED WOULD HAVE A LEFT TURN PHASE THAT PERMITS U-TURNS FOR VEHICLES AS LARGE AS BUSES AND TRACTOR TRAILERS, BUT SOME AT THE MEETING FELT A JUG-HANDLE LOOP WOULD BE PREFERABLE TO ACCOMMODATE THESE VEHICLES. IN EITHER CASE, THE PROJECTED U-TURN VOLUMES COULD BE EASILY ACCOMMODATED BY THE SIGNAL TIMING.
- SUPPORT WAS EXPRESSED FOR FOUR LANES BETWEEN HARDY/JENKINS AND JOPPA HILL RD, AND WARNING FLASHERS UPSTREAM OF THE TRAFFIC SIGNAL.
- SOME FELT THAT RIGHT-TURN-ONLY DESIGNS WOULD NOT BE EFFECTIVE.
- SUPPORT WAS EXPRESSED FOR A U-TURN OPPORTUNITY AT DEARBORN LANE.
- IT WAS NOTED THAT A SIMILAR (BUT SMALLER) HAZARD EXISTS FOR LEFT TURNS ONTO NEW BOSTON ROAD, AND MANY RESIDENTS OF THE AREA MAKE A RIGHT TURN AND THEN USE THE STREET NETWORK TO CHANGE DIRECTION.
- THE AESTHETICS OF THE MEDIAN DIVIDER IN THIS AREA MUST BE CONSIDERED.
- THERE WAS ALSO A BRIEF DISCUSSION OF NOISE CONTROL. ANY EFFECTIVE NOISE BARRIER IS BOTH SOLID/MASSIVE AND HIGH. IT IS, HOWEVER, POSSIBLE TO DESIGN SUCH A BARRIER WITH ARCHITECTURAL TREATMENT TO IMPROVE ITS APPEARANCE.

- MARTY KENNEDY NOTED THAT THE EXACT LOCATION OF LEFT TURN BREAKS WOULD BE OPEN TO CONSIDERATION IN DESIGN. WHAT IS IMPORTANT AT THIS STAGE IS FOR THE PLAN TO INCLUDE THE CONCEPT OF A MEDIAN WITH LEFT TURNS AT SOME BUT NOT ALL POINTS, AND THAT OUTBOUND LEFT TURNS SHOULD NOT BE ALLOWED.

COMMENTS ON JOPPA HILL INTERSECTION OPTIONS:

- LARRY ZINER, WHO LIVES NEAR THE INTERSECTION ANALYZED THE SKETCHES PROVIDE IN ADVANCE OF THE MEETING. THE DIAMOND INTERCHANGE WOULD OCCUPY 6 TO 9 ACRES OF LAND AND WOULD COME WITHIN 200 FEET OF THE NEAREST HOUSES. THE SIGNALIZED INTERSECTION IS THE LEAST OBJECTIONABLE OPTION AND EVEN IT OCCUPIES TOO MUCH LAND. HE CONSULTED WITH A REALTOR AND BELIEVES ANY BRIDGE OPTION WOULD CAUSE A SIGNIFICANT DECREASE IN VALUE FOR HOUSES WITH THE BRIDGE IN VIEW. HE ALSO NOTED THAT THE WESTBOUND LEFT TURN OUT OF STOWELL ROAD IS VERY DANGEROUS AND NEEDS TO BE ADDRESSED.
- KAREN WHITE EXPRESSED CONCERN THAT A TRAFFIC SIGNAL WOULD MAKE THE CORNER LOTS AT JOPPA HILL ROAD DESIRABLE FOR DEVELOPMENT, POTENTIALLY LEADING TO A REZONING OR VARIANCE REQUEST, AND THAT THEY SHOULD BE PROTECTED FROM DEVELOPMENT.
- MATT MCLAUGHLIN SUPPORTED THE SIGNALIZED OPTION BECAUSE IT WOULD PROVIDE GAPS IN THE TRAFFIC NEEDED TO MAKE TURNS FURTHER EAST.
- THERE WAS DISCUSSION OF SIGNALS AT BOTH JOPPA HILL RD AND NEAR THE MOBIL STATION, BUT IT APPEARS VERY UNLIKELY THAT THE STATE WOULD

PERMIT TWO SIGNALS, EVEN ON THE BASIS OF SAFETY, WHEN TURN RESTRICTIONS ARE A POSSIBLE OPTION.

- THERE WAS DISCUSSION OF TRAFFIC SPEEDS. WOULD SIGNALS AT JOPPA HILL RD AND HARDY/JENKINS REDUCE SPEEDS? IT WAS ALSO NOTED THAT THE TOWN IS MAKING A HUGE COMPROMISE IF IT SUPPORTS WIDENING OF THE HIGHWAY TO FOUR LANES AND SHOULD IN RETURN RECEIVE SOME REDUCTION IN TRAFFIC SPEEDS TO PERHAPS 35 MPH.
- MICHAEL SCANLON NOTED THAT TRAFFIC IN 20 YEARS WILL BE MUCH WORSE, NO MATTER WHAT WE DO; THERE IS NO PERFECT SOLUTION, BUT WE SHOULD MAKE EVERY EFFORT TO IMPROVE THE SITUATION AS MUCH AS POSSIBLE.
- IN THE END, THE SIGNALIZED INTERSECTION WITH JUG-HANDLE RAMP HAD ALMOST UNANIMOUS SUPPORT. VHB WILL WORK ON THIS OPTION.

## **OTHER ISSUES**

- RYK BULLOCK NOTED THAT THE ROADWAY IMPROVEMENTS EAST OF WALLACE ROAD HAVE NOT BEEN DECIDED UPON YET, PENDING RESOLUTION OF ACCESS ISSUES. (THESE WILL BE DISCUSSED ON MAY 2.)

## **ATTENDANCE**

### **MEMBERS**

RYK BULLOCK  
SANDY CHANDLER  
BILL GREINER  
KAREN GRIMMETT

ANNE HOFFMAN  
SANDY LAMONTAGNE  
MATT MCLAUGHLIN  
MICHAEL SCANLON  
JANE SILBERBERG  
JAYNE SPAULDING  
BILL WALSH  
KAREN WHITE  
STEVE WORTHEN  
LARRY ZINER

OTHERS

MARK FOUGERE  
MONI SHARMA  
ANNE WIGGIN  
SUZANNE WHITTAKER  
MARTY KENNEDY, VHB  
DAVID BURSON, WFDG  
JIM PURDY, WFDG

## Bedford Route 101 Advisory Committee Meeting Notes

April 25, 2002 at the Old Fire Station Meeting Room  
7:00 – 9:30 PM

THE MEETING WAS ATTENDED BY ELEVEN MEMBERS PLUS 16 OTHER CITIZENS, INCLUDING MONI SHARMA, EXECUTIVE DIRECTOR OF SOUTHERN NEW HAMPSHIRE PLANNING COMMISSION. PRESENTATIONS WERE MADE BY JIM HICKS AND MIKE CASINO OF RKG ASSOCIATES, INC. ON ECONOMICS AND DEVELOPMENT, AND BY TERRY SZOLD OF COMMUNITY PLANNING SOLUTIONS AND MIT ON ZONING ISSUES.

### **ECONOMICS AND DEVELOPMENT**

BEDFORD HAS RECEIVED A CONSIDERABLE AMOUNT OF COMMERCIAL DEVELOPMENT OVER THE PAST DECADE, MOST OF IT IN THE ROUTE 3 CORRIDOR, BUT A SIGNIFICANT AMOUNT IN THE ROUTE 101 CORRIDOR. THERE ARE CURRENTLY 294 ACRES ZONED COMMERCIAL IN THE 101 CORRIDOR, 85 ACRES OF WHICH ARE UNDEVELOPED. THERE IS A TOTAL OF 814,000 GROSS SQUARE FEET (GSF) OF COMMERCIAL BUILDING SPACE IN THE 101 CORRIDOR, 71% OF IT IN OFFICE BUILDINGS, THE REST IN RETAIL BUILDINGS. IF THE 85 ACRES OF UNDEVELOPED COMMERCIAL ZONED LAND WERE DEVELOPED AT THE SAME AVERAGE DENSITY AS THE LAND THAT IS ALREADY DEVELOPED, AN ADDITIONAL 412,000 GSF COULD BE BUILT; THIS INCLUDES THE PROPOSED TARGET DEVELOPMENT. IF THE DEVELOPED PARCELS WHICH HAVE LESS THAN AVERAGE BUILDING SPACE PER ACRE WERE REDEVELOPED TO INCREASE BUILDING SPACE TO THE AVERAGE, THE POTENTIAL BUILD-OUT TOTAL WOULD INCREASE BY ANOTHER 100,000 GSF, FOR A TOTAL OF 512,000 GSF OF ADDITIONAL

BUILDINGS IN LAND CURRENTLY ZONED COMMERCIAL. THIS ESTIMATE DOES NOT ACCOUNT FOR PARCELS THAT HAVE WETLANDS OR STEEP SLOPES (SEE COMMENT BELOW) BUT ON THE OTHER HAND, THE AVERAGE INTENSITY OF DEVELOPMENT ASSUMED IN THE ANALYSIS IS CONSIDERABLY LESS THAN THE ZONING ALLOWS. ACCORDINGLY, THE ESTIMATES SHOULD NOT BE VIEWED AS PREDICTIONS, BUT RATHER AS ORDER-OF-MAGNITUDE INDICATORS OF FUTURE DEVELOPMENT POTENTIAL.

JIM HICKS ALSO POINTED OUT THAT THERE IS A GREAT DEAL OF LAND IN THE ROUTE 101 CORRIDOR THAT IS NOT ZONED COMMERCIAL BUT COULD BE REZONED IN THE FUTURE OR DEVELOPED UNDER VARIANCE. THIS COULD THEORETICALLY RESULT IN SEVERAL TIMES THE ADDITIONAL DEVELOPMENT TOTAL OF THE BUILD-OUT ANALYSIS DESCRIBED ABOVE.

ONE MIGHT CONCLUDE FROM THIS ANALYSIS THAT THERE MAY BE CONSIDERABLE DEVELOPMENT MARKET PRESSURE ON AVAILABLE LAND IN THE ROUTE 101 CORRIDOR, SO ACTION SHOULD BE TAKEN TO ENSURE THAT FUTURE DEVELOPMENT IS DONE IN A MANNER THAT MEETS THE TOWN'S GOALS AND IS CONSISTENT WITH THE CORRIDOR PLAN'S RECOMMENDATIONS ON ACCESS MANAGEMENT. ONE MIGHT ALSO OBSERVE THAT IF THE ROUTE 101 CORRIDOR IS VIEWED FAVORABLY IN THE REAL ESTATE MARKET, IT IS REASONABLE AND POSSIBLE TO REQUIRE THAT DEVELOPERS FOLLOW APPROPRIATE GUIDELINES.

FINALLY, JIM HICKS NOTED THAT THE GENERAL IMPACT OF THE PROPOSED ROADWAY IMPROVEMENTS, INCLUDING RESTRICTIONS ON SOME LEFT TURNS, WOULD BE BENEFICIAL FOR THE MAJORITY OF BUSINESSES IN THE CORRIDOR. SOME BUSINESSES, SUCH AS GAS STATIONS AND CONVENIENCE STORES WHICH DEPEND MORE HEAVILY ON TRAFFIC PASSING BY THEIR SITE, COULD BE ADVERSELY AFFECTED IF

THEY WERE NOT SERVED BY A LEFT-TURN POCKET IN THE MEDIAN (AND NOT PERMITTED TO HAVE OUTBOUND LEFT TURNS). HOWEVER, A 1999 RESEARCH STUDY CITED IN THE RKG REPORT INDICATED THAT ACTUAL IMPACTS OF RAISED MEDIANS ON SUCH BUSINESSES IS LESS THAN GENERALLY THOUGHT. VHB'S EXPERIENCE WITH ROUTE 101A AND ROUTE 125 ALSO SUPPORTS THIS CONCLUSION.

COMMENTS ON ECONOMIC ANALYSIS:

- THE PROPOSED TARGET DEVELOPMENT WOULD USE A LARGE PERCENTAGE OF THE AVAILABLE LAND. (THE ANALYSIS INCLUDED IT IN THE TOTALS.)
- DO THE ROADWAY IMPROVEMENTS PROMOTE MORE REGIONAL COMMERCIAL DEVELOPMENT THAN WOULD OTHERWISE RESULT? (EXPERIENCE ELSEWHERE IS THAT THE VOLUME OF TRAFFIC IS MORE IMPORTANT TO DEVELOPERS THAN THE TRAFFIC FLOW LEVEL OF SERVICE.)
- TOWN WATER AND SEWER SERVICE ARE CURRENTLY NOT AVAILABLE AT MOST OF THE COMMERCIAL ZONED PARCELS IN THE CORRIDOR; THIS LIMITS DEVELOPMENT POTENTIAL AND IS A FACTOR THE TOWN CAN CONTROL.
- DO DESIGN PARAMETERS SUCH AS TRAFFIC SIGNALS AFFECT DEVELOPMENT POTENTIAL? THE CORNER LOTS AT A SIGNALIZED INTERSECTION ARE USUALLY ATTRACTIVE TO COMMERCIAL DEVELOPERS.
- HOW CAN WE MAINTAIN VILLAGE CHARACTER IN THE CORRIDOR IN THE FACE OF PROJECTS LIKE THE FLATELY DEVELOPMENT? (DESIGN GUIDELINES ARE AN IMPORTANT PART OF THE ANSWER.)
- THE BUILD-OUT ANALYSIS GREATLY OVERSTATES THE POTENTIAL FOR FUTURE DEVELOPMENT BECAUSE MOST OF THE PARCELS THAT ARE NOT CURRENTLY

- HOUSING RENTALS IN BEDFORD ARE VERY ATTRACTIVE AND DON'T INDICATE ANY LESSENING IN RESIDENTIAL VALUE.
- THERE ARE MANY HOME BUSINESSES IN AND NEAR THE CORRIDOR, WHICH ARE PERMITTED STABLE USES THAT DON'T NEED UPZONING.

## ZONING DIAGNOSTIC

TERRY SZOLD PRESENTED AN ANALYSIS OF BEDFORD'S ZONING IN THE 101 CORRIDOR. KEY POINTS ARE THAT THE CO ZONE, WHERE MOST OF THE RETAIL USES ARE LOCATED, AND THE HC ZONE WHERE THE TWO MOBIL STATIONS ARE LOCATED, HAVE USE LIMITATIONS (FOR EXAMPLE, NO AUTO SALES OR AUTO REPAIR IN THE CO ZONE) AND DIMENSIONAL REQUIREMENTS. IN HER OPINION, SOME MINOR MODIFICATIONS COULD BE MADE TO MAINTAIN A VILLAGE CHARACTER IN THE CORRIDOR, FOR EXAMPLE EXCLUDING AUTO PARTS SALES, AND MODIFYING THE FRONT SETBACK REQUIREMENTS TO AVOID LARGE PARKING LOTS IN FRONT OF BUILDINGS, AS SUGGESTED IN THE SITE GUIDELINES PRESENTED TO THE COMMITTEE IN FEBRUARY. THE KEY TO MAINTAINING APPROPRIATE AND ATTRACTIVE DEVELOPMENT CHARACTER IS TO USE GUIDELINES FOR SITE LAYOUT, LANDSCAPING, AND ARCHITECTURE. THERE ARE A NUMBER OF WAYS IN WHICH THESE CAN BE INCORPORATED INTO THE EXISTING ZONING AND SITE REVIEW PROCESS. BEYOND THIS, THE TOWN MAY WISH TO CONSIDER THRESHOLDS OF PERHAPS 25,000 SQUARE FEET FOR COMMERCIAL BUILDINGS, WHICH WOULD SUBJECT LARGER BUILDINGS TO MORE INTENSIVE REVIEW AND ADDITIONAL GUIDELINES TO PROTECT COMMUNITY CHARACTER AND TO MANAGE ACCESS. "MAIN STREET" TYPE DEVELOPMENT

WITH RESIDENTIAL APARTMENTS ABOVE GROUND FLOOR COMMERCIAL MIGHT ALSO BE CONSIDERED. COPIES OF THE SLIDES USED IN THE PRESENTATION WILL BE DISTRIBUTED TO COMMITTEE MEMBERS.

COMMENTS ON ZONING:

- THE PRESENTATION RECEIVED APPLAUSE BY MOST OF THOSE PRESENT. THERE WERE ALSO COMMENTS FROM SOME PRESENT THAT THEY ARE ENCOURAGED BY THE PRESENTATION'S APPROACH TO THE ISSUES.
- WHERE SHOULD "MAIN STREET" HOUSING BE PERMITTED? HOME BUSINESSES ALREADY REPRESENT THIS COMBINATION. A TRADITIONAL NEIGHBORHOOD DEVELOPMENT PROVISION WAS ADDED TO THE ZONING IN THE 1980S AND LATER REPEALED.
- THERE ARE OTHER CONTROLS ON LARGE DEVELOPMENT INCLUDING BUILDING CODE AND FIRE DEPARTMENT REQUIREMENTS FOR LIFE SAFETY; THESE TEND TO MAKE LARGE BUILDINGS MORE EXPENSIVE.
- HOW FLEXIBLE OR RIGID SHOULD GUIDELINES BE? IF TOO FLEXIBLE, THEY WON'T BE EFFECTIVE; IF TOO RIGID, THEY MAY NOT ACHIEVE THE DESIRED RESULT AND COULD LEAD TO MANY APPEALS AND VARIANCE REQUESTS. THE BEST POLICY SEEMS TO BE IN THE MIDDLE. (SEE DISCUSSION IN NOTES FROM THE APRIL 11 MEETING.)
- ARE WE TOO CONCERNED WITH LARGE DEVELOPMENT THAT MAY NOT HAPPEN?

- DEVELOPERS WITH MONEY CAN MODIFY STEEP SLOPES AND BUILD ON DIFFICULT SITES IF THE MARKET WARRANTS IT; VIGILANCE IS NEEDED.
- ARE THERE REALLY HISTORIC BUILDINGS IN THE COMMERCIAL ZONE? THE BARN AT WALLACE ROAD IS AN EXAMPLE OF ONE, BUT THE INTENT OF THE GUIDELINES WOULD BE MORE TO DESIGN IN A MANNER THAT IS COMPATIBLE WITH THE CHARACTER OF THE HISTORIC CENTER, EVEN THOUGH MOST OF THE BUILDINGS IN THE HISTORIC DISTRICT ARE NOT DIRECTLY ON ROUTE 101 AND NOT COMMERCIAL. THE INTENT IS TO MAINTAIN A VILLAGE CHARACTER IN THE CORRIDOR RATHER THAN ACCEPT POORLY DESIGNED BIG-BOX AND SMALL-BOX STORES.
- THERE WAS DISCUSSION AS TO WHETHER THE FLATELY/TARGET DEVELOPMENT PROPOSAL SHOULD BE ADDRESSED SPECIFICALLY IN THE CORRIDOR PLAN. FOR EXAMPLE, WILL IT ADD TO THE WEAR AND TEAR AT THE 114/101 INTERSECTION THAT IS ALREADY OCCURRING?
- WE SHOULD PURCHASE LAND AT KEY LOCATIONS TO AVOID UNWANTED DEVELOPMENT.

## OTHER ISSUES

- ALTHOUGH THE FIVE PRIORITY PROJECTS WERE ADDRESSED AT THE MARCH 14 MEETING, OTHER ISSUES REMAIN. WILL THERE BE ENOUGH TIME TO COVER THEM AT A FINAL MEETING?

- THERE WAS DISCUSSION ABOUT THE NEED FOR FUTURE MEETINGS BEYOND MAY 2. KAREN WHITE SUGGESTED THAT A DRAFT REPORT BE SENT TO EACH COMMITTEE MEMBER, AND THAT EACH MEMBER CAN COMMENT IN WRITING IN A LETTER TO THE TOWN COUNCIL.

## **ATTENDANCE**

### **MEMBERS**

RYK BULLOCK  
TRACEY CARRIER  
BILL GREINER  
ANNE HOFFMAN  
MATT MCLAUGHLIN  
MICHAEL SCANLON  
ELAINE TEFFT  
KAREN WHITE  
SCOTT WIGGIN  
STEVE WORTHEN

### **OTHERS**

ED BALAN  
PAUL DRAHNAK  
MARK FOUGERE  
JIM HURLEY

JEANENE PROCOPIIS  
GEORGE MUNSON  
DEE DEE O'ROURKE  
MONI SHARMA  
KATHY SHARTZYN  
ROB TAPPEN  
NANCY TE  
SUSAN TUFTS-MOORE  
BARBARA TUFTS  
SUZANNE WHITTAKER  
ANNE WIGGIN  
MIKE CASINO, RKG  
JIM HICKS, RKG  
JIM PURDY, WFDG  
TERRY SZOLD, COMMUNITY PLANNING SOLUTIONS

## Bedford Route 101 Advisory Committee Meeting Notes

May 2, 2002 at the Old Fire Station Meeting Room

7:00 – 9:30 PM

THE MEETING WAS ATTENDED BY 16 MEMBERS PLUS 24 OTHER CITIZENS, INCLUDING MONI SHARMA, EXECUTIVE DIRECTOR OF SOUTHERN NEW HAMPSHIRE PLANNING COMMISSION. PRESENTATIONS WERE MADE BY MARTY KENNEDY OF VHB ON ACCESS MANAGEMENT EAST OF WALLACE ROAD AND ON A CONCEPT FOR REBUILDING THE ROUTE 114/101 INTERSECTION. THERE WAS ALSO DISCUSSION OF NEIGHBORHOOD CONCERNS AND A POTENTIAL BIKE ROUTE FROM THE TOWN CENTER TO DONALD STREET.

### ACCESS MANAGEMENT

EAST OF WALLACE ROAD, THERE WOULD BE A BOULEVARD WITH LANDSCAPED MEDIAN IN THE TOWN CENTER, EXTENDING TO MEETINGHOUSE ROAD, AND A SECTION WITH TWO LANES IN EACH DIRECTION AND A MEDIAN DIVIDER FROM MEETINGHOUSE ROAD TO OLD BEDFORD ROAD. AS IN THE AREA WEST OF WALLACE, WHICH WAS DISCUSSED AT THE APRIL 11 MEETING, IT IS IMPORTANT TO RESTRICT LEFT TURNS ONTO THE HIGHWAY FROM SIDE STREETS AND DRIVEWAYS FOR SAFETY. ALSO FOR SAFETY, LEFT TURNS FROM THE HIGHWAY TO DRIVEWAYS AND SIDE STREETS ARE CONCENTRATED AT A FEW LOCATIONS, WHERE A LEFT TURN POCKET IS PROVIDED IN THE MEDIAN. THE EXACT LOCATION OF THESE LEFT TURN POCKETS WILL ULTIMATELY BE DECIDED DURING THE ENGINEERING OF THE IMPROVEMENTS, AND A PUBLIC PROCESS WILL TAKE PLACE AT THAT TIME. AT PRESENT, THE CORRIDOR PLAN SHOULD RECOMMEND AS FEW OF THESE LEFT TURN LOCATIONS AS POSSIBLE.

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THE CONCEPT PRESENTED BY MARTY KENNEDY (WHICH WAS MAILED TO COMMITTEE MEMBERS IN ADVANCE OF THE MEETING) ILLUSTRATES FOUR LOCATIONS IN THE WALLACE RD TO NASHUA RD OVERPASS SECTION, AS WELL AS LEFT TURNS INTO ONE ENTRANCE TO PINECREST CIRCLE AND THE MOBIL STATION ON OPPOSITE SIDES OF ROUTE 101; AT LIBERTY HILL ROAD; AND AT SHAW DRIVE. IT IS RECOMMENDED THAT COLONIAL DRIVE BE CLOSED AT ROUTE 101, SINCE IT IS A SHORT DISTANCE FROM THE SHAW DRIVE ENTRANCE, AND THAT THE EASTERN EGRESS FROM PINECREST CIRCLE BE LIMITED TO RIGHT TURNS ONLY.

MARTY FURTHER RECOMMENDED THAT CONNECTIONS BE DEVELOPED BETWEEN COMMERCIAL PROPERTIES IN THE TOWN CENTER, PROBABLY AT THE REAR OF THE BUILDINGS. EXACT ALIGNMENTS FOR THESE CONNECTIONS NEED TO BE WORKED OUT IN DETAIL DURING DESIGN TO ADDRESS TOPOGRAPHY, WETLANDS, AND THE CIRCULATION NEEDS OF EACH PROPERTY. IDEALLY, THE CONNECTION WOULD CONTINUE TO WALLACE ROAD JUST SOUTH OF ITS INTERSECTION WITH ROUTE 101.

COMMENTS ON ACCESS MANAGEMENT:

- DO ACCIDENTS PRESENTLY OCCUR ON ROUTE 101 THROUGHOUT THE TOWN CENTER? YES.
- THE ILLUSTRATION DOES NOT SHOW A LEFT TURN INTO THE ETHAN ALLEN FURNITURE STORE. TRUCKS WITH 55-FOOT SEMI-TRAILERS MAKE REGULAR DELIVERIES. RESPONSE: THE LOCATIONS OF LEFT TURN POCKETS WOULD BE DETERMINED DURING DESIGN, AND SPECIFIC REQUIREMENTS AND TURNING MOVEMENT VOLUMES FOR EACH BUSINESS WOULD BE ANALYZED AS PART OF THE DESIGN PROCESS, SO THE LEFT TURN COULD BE LOCATED TO SERVE ETHAN ALLEN'S NEEDS. THE PLAN WILL NEED TO PROVIDE REASONABLE ACCESS TO

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ALL PROPERTIES. IN RESPONSE TO A QUESTION CONCERNING THE ABILITY OF A LARGE 18-WHEELER TRACTOR-TRAILER TRUCK TO MAKE A U-TURN AT A SIGNALIZED INTERSECTION, MARTY STATED THAT A TRUCK OF THAT SIZE WOULD BE ABLE TO MAKE THAT TYPE OF TURN. ~~HOWEVER, UPON CLOSER REVIEW,~~ MARTY HAS DETERMINED THAT THE ROADWAY CROSS SECTION AS CURRENTLY DEPICTED WITH THE NARROW 5-FOOT SHOULDERS WOULD NOT BE DESIGNED TO ACCOMMODATE A U-TURN FROM A TRUCK OF THAT SIZE, AND THIS ISSUE NEEDS TO BE ADDRESSED IN DESIGN EITHER BY PROVIDING DIRECT ACCESS FOR TRUCKS OF THIS SIZE OR DESIGNING THE INTERSECTION TO ACCOMMODATE THEM..]

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- IT WAS SUGGESTED THAT A LEFT TURN COULD BE LOCATED AT CHESTNUT DRIVE, WITH LATERAL CONNECTOR ROADS TO BUSINESSES ON EITHER SIDE OF THIS POINT.
- ON GROUNDS OF EQUITY, ALL BUSINESSES SHOULD BE TREATED ALIKE WITH REGARD TO ACCESS. RESPONSE: HOWEVER, NOT EVERY BUSINESS CAN HAVE ITS OWN LEFT TURN POCKET. DURING ENGINEERING DESIGN, LOCATIONS MUST BE DETERMINED THAT SERVE ALL BUSINESSES ADEQUATELY. ONE APPROACH MIGHT BE TO LOCATE LEFT TURNS BETWEEN BUSINESSES, SO NO SINGLE BUSINESS GETS BETTER ACCESS.
- THERE ARE SOME ISSUES WITH A PARALLEL CONNECTOR BETWEEN BUSINESSES, SUCH AS TOPOGRAPHY, WETLANDS (AT THE REAR OF SHORTY'S RESTAURANT) AND LANDSCAPING. RESPONSE: THESE MUST BE ADDRESSED DURING ENGINEERING DESIGN.

- FOUR LEFT TURN POCKETS IN THE TOWN CENTER MAY BE TOO MANY FROM THE POINTS OF VIEW OF ACCESS MANAGEMENT AND BOULEVARD DESIGN, WHICH IS COMPROMISED IF MUCH OF THE MEDIAN IS DISPLACED BY LEFT TURN LANES.
- IT WAS SUGGESTED THAT THE LANDSCAPED MEDIAN IN THE BOULEVARD SECTION SHOULD PERHAPS BE WIDER. USE OF LANDSCAPED BERMS WAS ALSO SUGGESTED.
- IT WAS SUGGESTED THAT THE LEFT TURN FOR ALL OR MOST BUSINESSES SHOULD BE AT CHESTNUT DRIVE WITH CONNECTOR ROADS GOING IN BOTH DIRECTIONS FROM THIS POINT.

- 
- FIRE TRUCKS AND EMERGENCY VEHICLES MUST BE ACCOMMODATED. RESPONSE: THE MEDIAN WILL BE DESIGNED SO THAT THERE ARE FREQUENT OPPORTUNITIES FOR EMERGENCY VEHICLES TO CROSS OVER.
- IT WAS SUGGESTED THAT THE LENGTH OF LEFT TURN POCKETS SHOULD BE DETERMINED BASED ON QUEUING ANALYSIS DURING DESIGN.
- IT WAS SUGGESTED THAT THE IF CONNECTIONS ARE PROVIDED FROM THE CURRENT NASHUA ROAD (NEXT TO THE NEW OVERPASS) TO THE PARKING LOT AT THE VILLAGE SHOPS, THERE IS LIKELY TO BE CUT-THROUGH TRAFFIC, ESPECIALLY AFTER BALL GAMES.
- THE CONNECTOR ROAD BETWEEN NASHUA ROAD AND WALLACE ROAD SHOULD BE LOCATED SO AS NOT TO HAVE IMPACTS ON THE KENNEDY DRIVE/ROOSEVELT DRIVE NEIGHBORHOOD, AS WELL AS AVOIDING WETLAND IMPACTS AND RESIDENTIAL TAKINGS.

Deleted: CAN TRUCKS SAFELY REVERSE DIRECTION AT TRAFFIC SIGNALS? RESPONSE: YES. THERE IS NO ONCOMING TRAFFIC DURING THE LEFT-TURN/U-TURN SIGNAL PHASE, AND THE 5-LANE CROSS-SECTION AT THE INTERSECTIONS IS ADEQUATE FOR A 55-FOOT TRACTOR-TRAILER RIG.

- WILL THE ROADWAY DESIGN BEING PROPOSED FOR ROUTE 101 INCREASE SPEEDS? RESPONSE: ACTUALLY, THE BOULEVARD SECTION AND OTHER TOWN CENTER IMPROVEMENTS SHOULD REDUCE SPEEDS.
- WILL THERE BE LAND TAKINGS TO ACCOMMODATE THE PROPOSED 4-LANE DIVIDED SECTION AND IMPROVED INTERSECTIONS? RESPONSE: THE EXISTING RIGHT-OF-WAY IS GENERALLY 100 FEET WIDE, WHICH IS ENOUGH TO ACCOMMODATE THE PROPOSED IMPROVEMENTS. HOWEVER, IN A FEW LOCATIONS, THERE MAY NEED TO BE SOME LIMITED EASEMENTS TO PROVIDE FOR SIDE SLOPES WHERE THE SURROUNDING LAND IS MUCH LOWER THAN THE HIGHWAY. THERE IS ALSO A STRETCH OF ROADWAY WEST OF HARDY/JENKINS WHERE THE RIGHT-OF-WAY IS ONLY 60-65 FEET WIDE, AND SOME LIMITED LAND MUST BE ACQUIRED HERE TO ACCOMMODATE THE IMPROVEMENTS.
- WHAT ABOUT CONSTRUCTION-PERIOD IMPACTS? RESPONSE: THERE WILL CERTAINLY BE IMPACTS DURING WIDENING OF ROUTE 101 AND ITS INTERSECTIONS. HOWEVER, THERE IS PLENTY OF EXPERIENCE SHOWING THAT THESE IMPACTS CAN BE CONTROLLED AND MITIGATED IF THE CONSTRUCTION CONTRACT CONTAINS APPROPRIATE SPECIFICATIONS, AND THE TOWN SHOULD DEMAND AND GET THIS KIND OF MITIGATION. EXAMPLES ARE DUST CONTROL, TEMPORARY SIGNAGE, MAINTENANCE OF DRIVEWAY AND WALKWAY ACCESS, AND WETLAND PROTECTION.
- IS THE PLAN FOR PINECREST CIRCLE THE BEST POSSIBLE OPTION? (THE PLAN SHOWS A LEFT TURN INTO THE WESTERLY ENTRANCE TO PINECREST AND RIGHT TURNS OUT OF BOTH ENTRANCES.) RESPONSE: LEFT TURNS OUT ONTO THE HIGHWAY ARE DANGEROUS AND SHOULD NOT BE PROVIDED FOR SAFETY, BUT IT

WILL BE RELATIVELY EASY FOR PEOPLE HEADED IN A WESTBOUND DIRECTION TO REACH THE CENTER TURN LANE AT MEETINGHOUSE ROAD AND MAKE A U-TURN IN THE PROVIDED SIGNAL PHASE.

- A CONNECTOR ROAD BETWEEN SHAW AND COLONIAL DRIVES SHOULD BE INCLUDED IN THE PLAN.
- WHAT HAPPENS TO THE NASHUA ROAD INTERSECTION IF THE OVERPASS DOES NOT HAPPEN? RESPONSE: THIS ISN'T LIKELY, BUT IN THIS CASE, THE INTERSECTION WITH ROUTE 101 SHOULD STILL BE CLOSED AND TRAFFIC ROUTED TO WALLACE ROAD VIA THE PROPOSED CONNECTOR ROAD OR AT LEAST, THE MOVEMENTS AT NH 101 WOULD BE RESTRICTED TO RIGHT-TURN IN/ RIGHT-TURN OUT.

## ROUTE 114/101 INTERSECTION

THE CURRENT BOTTLENECK LEAVING THIS INTERSECTION WESTBOUND IS DUE TO THE SHORT MERGE OF THE DOUBLE LEFT TURN INTO A SINGLE LANE BEFORE THE TRAFFIC SIGNAL AT OLD BEDFORD ROAD. REMEDYING THIS PROBLEM IS A SHORT-TERM PRIORITY AND CAN BE ACCOMPLISHED BY EXTENDING THE TWO WESTBOUND LANES TO A POINT JUST BEYOND THE OLD BEDFORD ROAD INTERSECTION.

IN THE LONGER TERM, TRAFFIC INCREASES WILL CAUSE LEVELS OF SERVICE IN THE 114/101 INTERSECTION ITSELF TO DEGRADE, AND A LONGER-TERM SOLUTION IS NEEDED. MARTY PRESENTED A CONCEPT FOR A TWO-LEVEL INTERSECTION. DOING THIS GRADE-SEPARATES CONFLICTING MOVEMENTS, TURNING THE PRESENT INTERSECTION WITH FOUR SIGNAL PHASES INTO TOP-AND-BOTTOM INTERSECTIONS EACH WITH ONLY TWO SIGNAL PHASES. THESE SIGNALS WOULD BE COORDINATED TO

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AVOID CONFLICTS WHERE THE LANES EXITING THE TWO LEVELS COME TOGETHER. THE RESULT IS MORE GREEN TIME FOR ALL MOVEMENTS. THE CONCEPT ALSO TAKES ADVANTAGE OF THE FACT THAT THE EXISTING INTERSECTION IS IN A LOW AREA COMPARED TO THE ROADS ENTERING IT, SO THE TOP LEVEL OF THE INTERSECTION WOULD BE ESSENTIALLY LEVEL WITH THE CRESTS OF THREE OF THE ENTERING ROADWAYS, AND RELATIVELY LITTLE EXCAVATION WOULD BE NEEDED TO PROVIDE VERTICAL CLEARANCES.

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THE NEW INTERSECTION WOULD FIT WITHIN EXISTING RIGHT OF WAY AND THERE IS LITTLE OR NO WETLAND IMPACT.

THE BOTTOM LEVEL WOULD SERVE THE FOLLOWING MOVEMENTS

FIRST SIGNAL PHASE:

- ROUTE 101 WESTBOUND, LEFT TURN
- ROUTE 114 TO BOYNTON STREET LEFT TURN

SECOND SIGNAL PHASE:

- ROUTE 101 WESTBOUND TO ROUTE 114, THROUGH, AND TO BOYNTON STREET, RIGHT TURN
- ROUTE 114 TO ROUTE 101 EASTBOUND, THROUGH MOVEMENT
- ROUTE 114 TO ROUTE 101 WESTBOUND, RIGHT TURN
- ROUTE 101 EASTBOUND SLIP RAMP

THE UPPER LEVEL WOULD SERVE THE FOLLOWING MOVEMENTS:

FIRST SIGNAL PHASE:

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- ROUTE 101 EASTBOUND TO BOYNTON STREET, THROUGH MOVEMENT
  - BOYNTON STREET TO ROUTE 101 WESTBOUND, THROUGH MOVEMENT
- SECOND SIGNAL PHASE:
- BOYNTON STREET TO ROUTE 101 EASTBOUND, LEFT TURN
  - ROUTE 101 EASTBOUND TO ROUTE 114, LEFT TURN

COMMENTS ON 114/101 INTERSECTION CONCEPT:

IS THE CAPACITY DESIGNED INTO THE 114/101 INTERSECTION A FUNCTION OF THE DEVELOPMENT PROPOSAL ON OLD BEDFORD ROAD? RESPONSE: NO. THE INTERSECTION CONCEPT AS SHOWN IS NECESSARY WITH OR WITHOUT THE PROPOSED DEVELOPMENT; AS SHOWN IT WILL BE ADEQUATE TO SERVE ALL TRAFFIC INCLUDING THIS DEVELOPMENT. THE CHANGE THAT SHOULD BE MADE IF THE DEVELOPMENT IS APPROVED IS ON THE OLD BEDFORD ROAD APPROACH TO ROUTE 101, NOT ON ROUTE 101 ITSELF.

ISN'T THE MAJOR PROBLEM FOR WESTBOUND TRAFFIC LEAVING THE 114/101 INTERSECTION A LACK OF CAPACITY AT THE OLD BEDFORD ROAD TRAFFIC SIGNAL? RESPONSE: NO. THE PROBLEM IS ACTUALLY THE SHORT MERGE FROM TWO LANES TO ONE. EXTENDING THE MERGE THROUGH THE TRAFFIC SIGNAL WILL SOLVE THE IMMEDIATE PROBLEM.

**NEIGHBORHOOD CONCERNS**

A NUMBER OF NEIGHBORHOOD ISSUES WERE DISCUSSED.

THERE IS CONCERN ABOUT TRAFFIC SHORT CUTTING THROUGH THE NEIGHBORHOOD EAST OF ROUTE 114, ESPECIALLY ON DONALD STREET (VIA OLD BEDFORD ROAD AND NEW BOSTON ROAD) AND ALONG STREETS SUCH AS HAZEN ROAD TO PALOMINO LANE. THE SHORT-CUTTING VIA OLD BEDFORD ROAD TO DONALD STREET INVOLVES WAITING FOR A LEFT TURN AT OLD BEDFORD ROAD, WHICH IS PREFERRED BY SOME DRIVERS BECAUSE THE ROUTE 114/101/BOYNTON STREET INTERSECTION IS CONGESTED. (BOYNTON STREET'S OPPOSITE END IS VERY CLOSE TO THE END OF DONALD STREET, SO IF THERE WERE NO CONGESTION, IT WOULD BE A MUCH SHORTER AND DIRECT ROUTE.) IMPROVING THE 114/101 INTERSECTION SHOULD THEREFORE REDUCE TRAFFIC ON DONALD STREET, NOT INCREASE IT. HOWEVER, THE ROUTE 101 IMPROVEMENTS WILL HAVE LITTLE OR NO EFFECT ON TRAFFIC FROM NEW BOSTON ROAD, WHICH IS FAR FROM ROUTE 101 AND PARALLEL TO IT. SIMILARLY, CUT-THROUGHS ON PALOMINO LANE, A NARROW RESIDENTIAL STREET WITHOUT SIDEWALKS, IS A PROBLEM THAT SHOULD PROBABLY BE ADDRESSED THROUGH TRAFFIC CALMING OR OTHER MEANS. ROUTE 101 IMPROVEMENTS WOULD NEITHER INCREASE NOR DECREASE THE USE OF THIS CUT-THROUGH. SIDEWALKS IN THIS NEIGHBORHOOD MIGHT ALSO BE CONSIDERED INDEPENDENT OF THE ROUTE 101 STUDY.

THERE IS A CONCERN ABOUT THE HISTORIC HOUSE ON THE SOUTHEAST CORNER OF LIBERTY HILL ROAD AND ROUTE 101. HOWEVER, THIS HOUSE IS SET WELL BACK FROM ROUTE 101, AND THERE SHOULD NOT BE ANY DIRECT EFFECT DUE TO THE IMPROVEMENTS. INCREASED TRAFFIC, WHICH WILL

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OCCUR WITH OR WITHOUT THE IMPROVEMENTS, WOULD, HOWEVER, INCREASE NOISE IMPACTS ON THIS PROPERTY.

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THE PROPOSED CONNECTOR ROAD IS OF GREAT CONCERN TO THE RESIDENTS OF THE ROOSEVELT/KENNEDY DRIVE NEIGHBORHOOD. RESIDENTS PRESENTED A PETITION URGING THAT THE CONNECTOR NOT BE ROUTED NEAR THEM, WHERE SEVERAL RESIDENTIAL LOTS COULD BE AFFECTED, AND SUGGESTED AN ALIGNMENT FURTHER NORTH. THE EARLY PRESENTATIONS OF THE CONNECTOR ROAD SHOWED IT ON THE OLD CLASS VI ROAD (COUNTY ROAD EXTENSION), BUT THE PLAN WILL BE CLARIFIED TO NOTE THAT AN ALIGNMENT HAS NOT BEEN SELECTED. SEVERAL ALIGNMENTS ARE POSSIBLE, AND NEIGHBORHOOD IMPACTS WILL BE AN IMPORTANT CONSIDERATION DURING ENGINEERING DESIGN WHEN THE ALIGNMENT IS CHOSEN; THERE WILL BE OPPORTUNITIES FOR PUBLIC INPUT DURING ENGINEERING.

#### **POTENTIAL PEDESTRIAN BICYCLE ROUTE**

IN FEBRUARY, THERE WAS A DISCUSSION OF A PEDESTRIAN BICYCLE ROUTE FROM THE TOWN CENTER TO THE DONALD STREET NEIGHBORHOOD. THIS ROUTE APPEARS TO BE WORTHWHILE AND FEASIBLE, AT LEAST FOR BICYCLES. IT WOULD USE BEDFORD CENTER ROAD TO THE EXISTING PATH SEGMENT IN FRONT OF THE VILLAGE INN, TURN UP VILLAGE INN LANE AND FOLLOW OLD BEDFORD ROAD ACROSS THE ROUTE 114 OVERPASS TO DONALD STREET. FOR PEDESTRIANS, THIS IS AN ACCEPTABLE ROUTE FROM THE TOWN CENTER TO OLD BEDFORD ROAD. THERE ARE NO SIDEWALKS ON BEDFORD CENTER ROAD.

BUT TRAFFIC VOLUMES ARE NOT HIGH ON THIS SEGMENT AND THE ROADWAY IS WIDE ENOUGH TO WALK AT THE EDGE OF THE STREET FACING TRAFFIC. (MANY PEOPLE HAVE EXPRESSED PREFERENCES THAT SIDEWALKS NOT BE INSTALLED IN THE HISTORIC TOWN CENTER.) OLD BEDFORD ROAD IS ACCEPTABLE FOR EXPERIENCED BICYCLE RIDERS, AND ROUTE SIGNAGE COULD BE USED TO ALERT DRIVERS TO THE BIKE ROUTE AND REQUEST THAT THEY SHARE THE ROAD; WALKING ON OLD BEDFORD ROAD SHOULD PROBABLY NOT BE ENCOURAGED DUE TO HIGHER TRAFFIC VOLUMES AND CURVATURE. THE DISTANCE FROM VILLAGE INN LANE PAST THE MEMORIAL ELEMENTARY SCHOOL TO THE DONALD STREET SUPERETTE, WHERE THERE IS A SIDEWALK, IS ABOUT 1.2 MILES. THE TOWN COULD CONSIDER INSTALLING A SIDEWALK ON ALL OR PART OF THIS STRETCH OF OLD BEDFORD ROAD AND DONALD STREET, ALTHOUGH THE DISTANCE WOULD MAKE THE PROJECT SOMEWHAT EXPENSIVE. A SIDEWALK HERE WOULD ALSO ACCOMMODATE SOME SHOPPERS IF THE PROPOSED TARGET DEVELOPMENT WERE APPROVED.

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## ATTENDANCE

RYK BULLOCK  
TRACEY CARRIER  
SANDY CHANDLER  
BILL GREINER  
KEITH HICKEY  
ANNE HOFFMAN

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NANCY LARSON  
MICHAEL SCANLON  
JANE SILBERBERG  
JAYNE SPAULDING  
ELAINE TEFFT  
BILL WALSH  
KAREN WHITE  
ANNE WIGGIN  
SCOTT WIGGIN  
STEVE WORTHEN

**OTHERS**

JEFF BELANGER  
CHARLOTTE DALEY  
PAUL DRAHNAK  
BRIAN DRISCOLL  
JOE DUBISZ  
GARY EDES  
ANDY EGAN  
MARK FOUGERE  
KATHY JOHNSON  
KANTE KESTOS  
JIM HURLEY

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JEANENE PROCOPIS  
TOM MOSER  
MR. & MRS. GEORGE MUNSON  
MONI SHARMA  
KATHY SHARTZYN  
ANDREW STRAUB  
ROB TAPPEN  
SUSAN TUFTS-MOORE  
BARBARA TUFTS  
TRACEY TULLIS  
SUZANNE WHITTAKER  
MATT YAKOVAKIS  
MARTY KENNEDY, VHB  
JIM PURDY, WFDG

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## Bedford Route 101 Public Meeting Notes

May 23, 2002 at McKelvie School  
7:00 – 9:30 PM

THE MEETING WAS ATTENDED BY APPROXIMATELY 100 CITIZENS. INTRODUCTIONS WERE MADE BY TOWN COUNCIL PRESIDENT MICHAEL SCANLON, WHO RECOGNIZED THE MEMBERS OF THE ROUTE 101 ADVISORY COMMITTEE FOR THEIR ASSISTANCE OVER THE COURSE OF NINE MEETINGS. PRESENTATIONS WERE MADE BY MARTY KENNEDY OF VHB ON ROADWAY IMPROVEMENT ISSUES AND BY PROJECT MANAGER JIM PURDY OF WALLACE FLOYD DESIGN GROUP ON QUALITY OF LIFE ISSUES. THE MATERIAL PRESENTED CAN BE FOUND IN THE 4-PAGE PRE-MEETING SUMMARY WHICH WAS WIDELY DISTRIBUTED IN THE RECENT BEDFORD JOURNAL; THIS MATERIAL IS ALSO POSTED ON THE PROJECT WEB SITE (WITH LINK FROM THE TOWN'S WEB SITE). IT WAS ALSO NOTED THAT THE DRAFT REPORT FOR THE CORRIDOR STUDY HAS NOT YET BEEN WRITTEN AND WILL BE SUBMITTED TO THE ADVISORY COMMITTEE MEMBERS FOR THEIR COMMENTS.

### OVERVIEW OF COMMENTS

THE MAJORITY OF THE MEETING WAS RESERVED FOR COMMENTS BY MEMBERS OF THE PUBLIC. JIM HICKS OF RKG ASSOCIATES, INC. ACTED AS FACILITATOR.

COMMENTS WERE LARGELY POSITIVE AND SUPPORTIVE, WITH THE EXCEPTION OF THE PROPOSED CONFIGURATION OF THE BELL HILL/NASHUA ROAD OVERPASS AND THE ASSOCIATED CONNECTOR ROAD FROM NASHUA ROAD TO WALLACE ROAD; MANY OF THESE COMMENTS EMPHASIZED THE CONCERNS OF PEOPLE LIVING IN THE KENNEDY/ROOSEVELT

DRIVE AREA, AND ON COUNTY ROAD, MEETINGHOUSE ROAD, AND LIBERTY HILL ROAD. THESE NEIGHBORHOODS EXPERIENCE TRAFFIC RELATED TO VEHICLES SHORT-CUTTING FROM ROUTE 101 AS WELL AS TRAFFIC ASSOCIATED WITH MCKELVIE SCHOOL AND EVENTS AT THE RECREATION AREA AND PLAYING FIELDS ON NASHUA ROAD. PEOPLE WHO COMMENTED ON THIS ASPECT OF THE PROJECT EXPRESSED SERIOUS CONCERNS ABOUT INCREASES IN LOCAL TRAFFIC WITH RESULTING SAFETY PROBLEMS AND TRAFFIC-RELATED IMPACTS SUCH AS NOISE. IN ADDITION, SOME COMMENTS WERE ALSO CONCERNED WITH THE DEVELOPMENT OF A NEW ROADWAY CONNECTOR THROUGH THE UNSPOILED AREA BETWEEN NASHUA AND WALLACE ROAD, WHICH IS USED BY NEIGHBORS AS OPEN SPACE, CONTAINS WETLANDS AND SUPPORTS WILDLIFE.

RESPONSE: ACCESS TO ROUTE 101 AT NASHUA ROAD WAS NOT PROPOSED IN THE PLAN BECAUSE OF THE POOR GEOMETRY OF THE EXISTING INTERSECTION MAKES IT HAZARDOUS, AND IT IS TOO CLOSE TO OTHER TRAFFIC SIGNALS TO HAVE ITS OWN SIGNAL. A DIAMOND INTERCHANGE WAS CONSIDERED BUT NOT PROPOSED BOTH BECAUSE IT WOULD OCCUPY A LARGE AREA OF LAND AND BECAUSE THE OVERPASS IS DESIGNED TO REDUCE TRAFFIC ON THE NORTHERN PART OF NASHUA ROAD TO LOCAL TRAFFIC ONLY; AN INTERCHANGE WOULD ENCOURAGE MORE TRAFFIC. THE CONSULTANT TEAM WILL RE-EVALUATE THE PROPOSED CONFIGURATION AND OPTIONS WHICH WOULD ADDRESS THESE CONCERNS. AMONG THESE OPTIONS IS THE LOCATION OF A CONNECTOR MUCH FARTHER NORTH, NEAR THE COMMERCIAL USES ALONG ROUTE 101; (THE PLAN AS PRESENTED DOES NOT CALL FOR THE CONNECTOR TO BE LOCATED ON THE OLD CLASS VI ROAD ALIGNMENT NEAR RESIDENCES). MORE SPECIFIC RESPONSES ARE ALSO PROVIDED BELOW.

## **SPECIFIC COMMENTS**

COMMENTS ARE SUMMARIZED IN MORE DETAIL BELOW BY TOPIC. RESPONSES ARE ENCLOSED IN [BRACKETS].

### **ACCESS MANAGEMENT ON ROUTE 101**

WILL THE PROPOSED OVERPASS AT NASHUA ROAD HAVE ADEQUATE CLEARANCE FOR TRUCKS? [YES, ALL ASPECTS OF THE DESIGN WILL ACCOMMODATE 50 FOOT SEMI-TRAILERS.]

CAN U-TURNS BE ACCOMMODATED AT THE WALLACE ROAD INTERSECTION? [YES.]

IS THE JUG-HANDLE RAMP NEEDED FOR EASTBOUND TRAFFIC AT STOWELL ROAD? [IT SERVES THE NEED FOR TRAFFIC FROM AMHERST TO REVERSE DIRECTION; THE BEDFORD STUDY IS BEING COORDINATED WITH THE AMHERST-MILFORD-WILTON STUDY.]

WILL THERE BE NO LEFT TURNS OUT OF THE MOBIL STATION OPPOSITE PINECREST CIRCLE WHEN THE PROPOSED MEDIAN IS CONSTRUCTED? [ALTHOUGH IT IS THE OBJECTIVE OF THE CORRIDOR PLAN TO AVOID LEFT TURNS ONTO THE HIGHWAY FOR REASONS OF SAFETY, IN SITUATIONS WHERE THE LEFT TURN OUT IS NECESSARY FOR THE BUSINESS TO FUNCTION, THESE LEFT TURNS MAY BE ACCOMMODATED. FINAL DECISIONS ON THE LOCATIONS OF LEFT TURNS WILL BE MADE DURING THE ENGINEERING DESIGN OF EACH STRETCH OF ROADWAY, WHICH WILL INCLUDE A PUBLIC PROCESS AND PARCEL-BY-PARCEL INVESTIGATIONS.]

ARE THE RESTRICTIONS OF LEFT TURNS TO FEWER LOCATIONS AND GENERAL PROHIBITION OF LEFT TURNS ONTO THE HIGHWAY SUPPORTED BY ACCIDENT DATA? CENTRAL LEFT TURN LANES ARE PREFERABLE. {YES, THE TRAFFIC VOLUMES AND ACCIDENT DATA DO SUPPORT THE NEED FOR THESE RESTRICTIONS. CENTER LEFT

TURN LANES WILL IN FACT BE IMPLEMENTED EAST OF GAGE GIRLS ROAD AND OTHER LOCATIONS IN THE NEAR-TERM. BUT AS VOLUMES INCREASE, IT WILL BECOME MORE DIFFICULT AND DANGEROUS TO MAKE TURNS. AND THE MEDIAN-DIVIDED HIGHWAY WITH ACCESS CONCENTRATED IN FEWER LOCATIONS IS THE BEST SOLUTION IN THE LONG TERM FOR BOTH SAFETY AND TRAFFIC OPERATIONS.]

WITH PROPOSED LEFT TURN RESTRICTIONS, ACCESS TO ROUTE 101 WILL BE DIFFICULT FOR RESIDENTS. THE PROPOSED CONNECTIONS BETWEEN PARCELS WILL BRING TRAFFIC INTO THE NEIGHBORHOODS. [IT IS RECOGNIZED THAT LEFT TURN RESTRICTIONS CAUSE INCONVENIENCE FOR SOME PEOPLE, DEPENDING ON WHERE THEY LIVE. HOWEVER, THESE RESTRICTIONS ARE MOTIVATED BY AN IMPORTANT SAFETY CONCERN AS WELL AS BETTER TRAFFIC FLOW, AND THE PEOPLE INCONVENIENCED WILL DIRECTLY BENEFIT FROM REDUCED RISK. THE CONNECTIONS BETWEEN PARCELS, WHICH ARE INTENDED TO REDUCE THE NUMBER OF CURB CUTS, WOULD BE ON THE PARCELS FRONTING ON THE HIGHWAY AND WOULD NOT DIRECT TRAFFIC INTO THE NEIGHBORHOODS. THERE WOULD BE MORE TRAFFIC ON THE COLLECTOR STREETS LIKE WALLACE ROAD AND HARDY ROAD WHICH ARE THE BEST ROUTES FOR ACCESS TO THE HIGHWAY, BUT THESE STREETS ALREADY SERVE THAT FUNCTION.]

WOULD THERE BE A LEFT TURN OUT OF THE WEATHERVANE RESTAURANT? [THE PLAN PROVIDES FOR A LEFT TURN IN, BUT BECAUSE OF THE ROADWAY GEOMETRY, THIS IS A PARTICULARLY BAD PLACE FOR LEFT TURNS OUT ONTO ROUTE 101.]

A POND AND DRY HYDRANT AT THE EAST ENTRANCE TO PINECREST CIRCLE SERVICES THE WHOLE AREA. WHAT IS THE ARRANGEMENT FOR FIRE TRUCK ACCESS AND WHY NOT MAKE THIS THE MAIN ENTRANCE TO THE CIRCLE? [FIRE TRUCKS AND

EMERGENCY VEHICLES WILL BE ABLE TO CROSS THE MEDIAN AT ALL STREETS. WE WILL LOOK SPECIFICALLY AT THE ACCESS TO THE DRY HYDRANT.]

TRAFFIC WAITING AT THE MEETINGHOUSE SIGNAL QUEUES BACK 20 TO 30 CARS; SO WHY HAVE TWO ENTRANCES TO PINECREST CIRCLE? [THE PLAN ATTEMPTS TO PROVIDE THE BEST ACCESS FOR PEOPLE IN PINECREST CIRCLE CONSISTENT WITH CONCENTRATING LEFT TURNS; THE EASTERLY ENTRANCE WOULD BE RIGHT-TURN-IN AND RIGHT-TURN-OUT, WHILE THERE WOULD BE A MEDIAN BREAK AT THE WESTERLY ENTRANCE TO ACCOMMODATE LEFT TURNS.]

## **HIGHWAY CROSS-SECTION**

IN THE BOULEVARD SECTION PROPOSED FOR THE TOWN CENTER, WHAT IS THE MEDIAN WIDTH? WILL THE EXISTING RIGHT-OF-WAY BE SUFFICIENT? [THE MEDIAN WOULD GENERALLY BE 14 FEET WIDE ALONG THE CORRIDOR, BUT IN THE BOULEVARD SECTION COULD BE EXPANDED TO 20 FEET. THE OVERALL CROSS-SECTION WILL FIT IN THE CURRENT RIGHT-OF WAY, WHICH IS 100 FEET WIDE OR MORE IN MOST PARTS OF THE CORRIDOR THE WIDTH OF PLANTING AREAS ALONG THE HIGHWAY WOULD BE ADJUSTED TO FIT AVAILABLE RIGHT-OF-WAY.]

WHAT ABOUT WINTER DAMAGE TO PLANTINGS FROM SALT AND PLOUGHED SNOW? [PLANTS WOULD BE SELECTED AND PLACED TO WITHSTAND WINTER CONDITIONS. THERE ARE A VARIETY OF SALT-TOLERANT PLANTINGS AND GROUND COVER.]

REGARDING THE MEETINGHOUSE INTERSECTION IMPROVEMENT, HOW WIDE IS THE IMPROVED INTERSECTION? WHICH SIDE OF 101 WILL BE WIDENED? [THE

INTERSECTION WOULD HAVE A FIVE-LANE CROSS-SECTION AND BE 74 FEET WIDE; THE RIGHT-OF-WAY IS 100 FEET. THERE WOULD BE WIDENING ON BOTH SIDE OF 101; THE EXACT CONFIGURATION WILL BE DECIDED DURING ENGINEERING DESIGN. THE APPROACHES ON MEETINGHOUSE ROAD WOULD NOT BE WIDENED.]

A BOULEVARD MAY BE APPROPRIATE FOR QUEENS NY BUT NOT FOR BEDFORD, WHICH HAS A RURAL CHARACTER. [THE BOULEVARD RECOGNIZES THE INCREASING TRAFFIC ON ROUTE 101 THROUGH THE TOWN CENTER AND, ALONG WITH DESIGN GUIDELINES, WOULD MAKE THE COMMERCIAL CENTER MORE ATTRACTIVE AND PEDESTRIAN-FRIENDLY; IT WOULD ALSO SIGNAL A CHANGE IN THE CHARACTER OF THE HIGHWAY AND ENCOURAGE DRIVERS TO SLOW DOWN.]

RAISED MEDIANS ARE OK BUT NOT JERSEY BARRIERS! [NO BARRIERS ARE BEING PROPOSED, ONLY A CURBED MEDIAN.]

### **DEVELOPMENT AND ZONING**

SHOULD COMMERCIAL ZONING BE REMOVED TO REDUCE FURTHER DEVELOPMENT ALONG THE CORRIDOR? [A ZONING STUDY WAS PERFORMED AS PART OF THE CORRIDOR STUDY BY TERRY SZOLD OF COMMUNITY PLANNING SOLUTIONS. THE CORRIDOR PLAN WILL FUNCTION WELL WITH THE CURRENT AMOUNT OF COMMERCIAL ZONED LAND, BUT UP-ZONING ADDITIONAL LAND TO COMMERCIAL IS NOT RECOMMENDED. ON THE OTHER HAND, DOWN-ZONING IS NOT NEEDED IF GOOD PRACTICE IS FOLLOWED, AND THE CORRIDOR PLAN CONTAINS DESIGN GUIDELINES FOR THIS PURPOSE. DOWN-ZONING LAND OUT OF THE COMMERCIAL ZONE WOULD BE A HARDSHIP FOR CURRENT OWNERS OF COMMERCIAL PROPERTY.]

DEVELOPMENT ALONG THE CORRIDOR SHOULD BE LIMITED BY THE TOWN BUYING LAND FOR OPEN SPACE, ESPECIALLY AT LOCATIONS SUCH AS JOPPA HILL/STOWELL ROADS AROUND THE PROPOSED INTERSECTION IMPROVEMENT. [THIS IS AN OPTION FOR THE TOWN TO CONSIDER.]

WE SHOULD NOT ENCOURAGE MORE DEVELOPMENT.

#### **OVERPASS AND CONNECTOR AND EFFECT ON COUNTY ROAD/MEETINGHOUSE ROAD AREA**

[RESPONSES ARE GIVEN TO SOME SPECIFIC COMMENTS BELOW, AND A GENERAL RESPONSE IS GIVEN ABOVE, PRECEDING THE DETAILED COMMENTS. THE CONSULTANTS WILL RECONSIDER THE PROPOSALS IN THIS AREA.]

THE COUNTY ROAD AREA WAS AGRICULTURAL WHEN I MOVED THERE. THE SCHOOL AND RECREATION AREA GENERATE HEAVY TRAFFIC. I AM CONCERNED THAT THE PROPOSED CONNECTOR WOULD MAKE IT MUCH WORSE.

THE AREA WAS RURAL AND AGRICULTURAL IN THE PAST. NOW THERE ARE FREQUENT CRASHES AT THE L-CORNERS INTERSECTION AND HEAVY TRAFFIC ON COUNTY ROAD.

THE PROPOSED CONNECTOR CUTS THROUGH A BEAUTIFUL AREA VISITED BY MANY RESIDENTS OF BEDFORD. [THIS MIGHT BE AVOIDED BY CAREFUL LOCATION OF THE CONNECTOR ROAD FURTHER NORTH; IF THE CONNECTOR ROAD REMAINS IN THE PLAN, ITS ALIGNMENT WOULD BE DETERMINED THROUGH A DETAILED STUDY AND PUBLIC PROCESS DURING ENGINEERING DESIGN.]

I AM CONCERNED ABOUT TRAFFIC ON MEETINGHOUSE ROAD, WHERE THERE IS HEAVY TRAFFIC CUTTING THROUGH TO ROUTE 3. THERE SHOULD BE A TRAFFIC SIGNAL AT WALLACE ROAD AND NORTH AMHERST ROAD TO DISCOURAGE CUT-THROUGHS. [THE PLAN AS PRESENTED WOULD SUBSTANTIALLY REDUCE TRAFFIC THROUGH THE HISTORIC

TOWN CENTER BY IMPROVING ROUTE 101 AND NOT WIDENING THE MEETINGHOUSE ROAD APPROACHES TO THE HIGHWAY; SIGNAL PHASING CAN ALSO HELP TO DISCOURAGE TRAFFIC FROM TAKING THIS ROUTE AS A SHORT CUT.]

THE PROPOSED CONNECTOR ROAD ADDS TRAFFIC TO THE INTERSECTIONS IN THE AREA; IT IS NOT SAFER.

THE ALIGNMENT OF THE PROPOSED CONNECTOR NEEDS TO BE DETERMINED. PRISTINE AREA WITH MOUNTAIN LAUREL AND LADY SLIPPER ORCHIDS IS AFFECTED BY THE CONNECTOR ROAD. IT SHOULD BE LOCATED CLOSER TO ROUTE 101 BEHIND THE COMMERCIAL USES.

THE BRIDGE IS COMMENDABLE AND THE DESIGN IS NICE, BUT WHY DOES THE PROPOSED OVERPASS HAVE NO RIGHT TURN FROM NASHUA ROAD TO ROUTE 101 AND NO RAMP FOR WESTBOUND TRAFFIC? [SEE RESPONSE ABOVE IN THE COMMENTS OVERVIEW SECTION.]

THE NEIGHBORHOOD AFFECTED BY THE PROPOSED CONNECTOR WASN'T CONSULTED.

I LIKE THE OVERPASS, BUT WHY NO ACCESS TO ROUTE 101; IT PUSHES TRAFFIC ONTO OTHER ROADS. TRAFFIC WILL FUNNEL DOWN MEETINGHOUSE ROAD. {SEE GENERAL RESPONSE IN THE COMMENTS OVERVIEW SECTION ABOVE.]

WHY PROPOSE A SIGNALIZED INTERSECTION IMPROVEMENT AT MEETINGHOUSE INSTEAD OF AN OVERPASS WHICH IS BETTER FOR PEDESTRIANS CROSSING. {THERE IS CONCERN ABOUT THE HISTORIC CONTEXT AND WETLANDS NEAR THIS INTERSECTION; AN OVERPASS WOULD HAVE GREATER IMPACTS TO THESE RESOURCES, AND A DIAMOND INTERCHANGE WITH ACCESS TO AND FROM THE HIGHWAY WOULD HAVE EVEN GREATER IMPACT.]

WOULD PREFER TO SEE A DIAMOND INTERCHANGE AT NASHUA ROAD, PROVIDING BOTH THE OVERPASS AND ACCESS TO THE HIGHWAY. [SEE RESPONSE IN COMMENTS OVERVIEW SECTION.]

SPORTS ARE GOOD, BUT THE RECREATION COMPLEX GENERATES A LOT OF TRAFFIC AND THE L-CORNERS INTERSECTION IS DANGEROUS. THE RECREATION COMPLEX SHOULD BE RELOCATED. I BELIEVE THAT THE PROPOSED CONNECTOR ROAD WILL GENERATE MORE TRAFFIC IN THE AREA.

COUNTY ROAD IS OVERLOADED. WITH ALL THE TRAFFIC, COUNTY, GAULT, AND MEETINGHOUSE ROADS WILL BECOME COMMERCIAL.

ROUNDBABOUTS HAVE BEEN SUCCESSFUL IN SLOWING TRAFFIC THROUGH NEIGHBORHOODS; THE L-CORNERS INTERSECTION WOULD BE A GOOD PLACE FOR ONE, ALSO THE MEETINGHOUSE/GAULT INTERSECTION. [A ROUNDBABOUT IS A TRAFFIC-CALMING DEVICE SUITABLE FOR CERTAIN SITUATIONS; THE L CORNERS INTERSECTION MIGHT BE A CANDIDATE, WITH OR WITHOUT THE OVERPASS AND CONNECTOR ROAD AT NASHUA ROAD.]

I'VE LIVED ON KENNEDY DRIVE FOR 30 YEARS. THERE IS TRAFFIC ON NASHUA ROAD FROM THE RECREATION COMPLEX 8 MONTHS A YEAR. THE 6:30-9:00 AM PERIOD IS A TRAFFIC DISASTER AT MCKELVIE SCHOOL. WE NEED A SPECIFIC ALIGNMENT FOR THE CONNECTOR ROAD. NASHUA ROAD INTERSECTS WITH WALLACE ROAD NOW, SO WHY IS A CONNECTOR NEEDED AT ALL? [THE INTERSECTION IS TOO FAR AWAY TO PROVIDE THE NEEDED CONNECTION AND ITS GEOMETRY IS POOR.]

I LIVE IN THE GRAFTON DRIVE NEIGHBORHOOD AND OFTEN HIKE WITH MY CHILDREN AND RIDE HORSEBACK IN THE OLD CLASS VI SECTION OF COUNTY ROAD AND THE

BEDFORD LAND TRUST PROPERTY. A CONNECTOR ROAD WOULD DISRUPT THIS AREA AND UNFAIRLY PENALIZE OWNERS WHO HAVE KEPT THE LAND OPEN. WHO DECIDES WHERE IT SHOULD GO? [SEE RESPONSE IN COMMENTS OVERVIEW SECTION ABOVE.]

THE NASHUA/COUNTY ROAD AREA IS HEAVILY USED BY VEHICLES AND PEOPLE ON FOOT. I WORRY ABOUT THE IMPACTS OF THE CONNECTOR ROAD ON THIS PEDESTRIAN-RICH AREA.

IF THERE WERE CONTINUED ACCESS FROM NASHUA ROAD TO ROUTE 101, THERE WOULD BE NO NEED FOR THE CONNECTOR.

I LIKE THE OVERPASS. THE NASHUA/BELL HILL INTERSECTION IS NOT SAFE NOW, SO DRIVERS USUALLY USE THE MEETINGHOUSE TRAFFIC SIGNAL TO CROSS ROUTE 101.

I LIVE ON COUNTY ROAD WEST. WHAT ARE THE TRAFFIC VOLUMES ON WALLACE ROAD? CARS FROM COUNTY ROAD WEST CURRENTLY HAVE TROUBLE GETTING INTO THE TRAFFIC ON WALLACE ROAD. HOW MUCH TRAFFIC WOULD BE ADDED? [THE CONSULTANT TEAM WILL LOOK AT THIS AREA DURING FURTHER STUDY OF THE OVERPASS AND CONNECTOR.]

#### **COORDINATION WITH NEW HAMPSHIRE DOT AND IMPLEMENTATION PROCESS**

WILL THE STATE ACCEPT THIS PLAN OR WILL THEY REQUIRE HIGH-SPEED LIMITED ACCESS LIKE THE SECTION OF ROUTE 101 BETWEEN I-93 AND THE SEACOAST? [THE PRELIMINARY PLANS WERE REVIEWED WITH NHDOT, WHOSE COMMENTS WERE POSITIVE AND SUPPORTIVE. THIS SECTION OF ROUTE 101 IS SIMPLY DIFFERENT FROM THE LIMITED ACCESS SECTION, AND NHDOT WILL NOT PURSUE PROJECTS WITHOUT LOCAL SUPPORT.]

HOW WAS THE STUDY FUNDED? [BEDFORD APPLIED FOR AND RECEIVED A FEDERAL TCSP GRANT (TRANSPORTATION AND COMMUNITY AND SYSTEM PRESERVATION) FOR \$230,000. ADDITIONAL FUNDING WILL BE SOUGHT FOR DESIGN AND IMPLEMENTATION OF PROJECTS RECOMMENDED IN THE PLAN, WITH THE HARDY/JENKINS INTERSECTION IMPROVEMENT HAVING THE FIRST PRIORITY. THE OVERALL PROCESS FOR IMPLEMENTATION WILL TAKE PLACE IN PIECES OVER 10 YEARS OR MORE. THE FIRST STEP IS FOR THE CORRIDOR PLAN TO BE COMPLETED, ENDORSED BY THE SOUTHERN NEW HAMPSHIRE PLANNING COMMISSION, AND INCLUDED IN THE STATE'S LONG RANGE TRANSPORTATION PLAN.]

## **BYPASS**

THE SUMMARY SAYS THAT THE PLAN WOULD COST \$45 MILLION; A BYPASS WOULD COST THE SAME AND TAKE THE SAME AMOUNT OF TIME. WHY NOT BUILD A BYPASS? [MANY EXAMPLES IN NEW HAMPSHIRE SHOW THAT A BYPASS WOULD IN FACT COST MORE THAN \$80 MILLION AND PROBABLY TAKE OVER 30 YEARS TO COMPLETE, IF IT WERE SUCCESSFUL IN WINNING SUPPORT AND APPROVAL. MOREOVER, APPROVAL IS VERY UNLIKELY: MERRIMACK AND AMHERST HAVE EXPRESSED THEIR OFFICIAL OPPOSITION AND NASHUA REGIONAL PLANNING COMMISSION WOULD NOT SUPPORT A BYPASS WITHOUT LOCAL SUPPORT. FOR THESE AND OTHER REASONS, A BYPASS IS NOT A VIABLE ALTERNATIVE IT SHOULD ALSO BE NOTED THAT ROUGHLY HALF THE COST OF THE PROPOSED CORRIDOR PLAN IS THE LONG TERM RECONSTRUCTION OF THE ROUTE 114/101 INTERSECTION, WHICH IS A FACILITY WITH REGIONAL BENEFITS. THE PLANNING HORIZON OF THE CORRIDOR PLAN IS 20 YEARS, BUT IMPROVEMENTS WOULD BEING ALMOST IMMEDIATELY AND COULD BE FULLY IMPLEMENTED IN 10 YEARS.]

## **PUBLIC PARTICIPATION**

WAS THE COMMUNITY PARTICIPATION PROCESS ADEQUATE? [THERE WERE THREE PRIOR PUBLIC WORKSHOPS AND MEETINGS AND NINE ADVISORY COMMITTEE MEETINGS AS WELL AS THE PROJECT WEB SITE TO INFORM THE PUBLIC AND RECEIVE COMMENTS. ALTHOUGH SOME MEMBERS OF THE ADVISORY COMMITTEE ARE NOT SATISFIED WITH THE PROCESS, THE PLAN WAS DEVELOPED STEP BY STEP BASED ON THEIR INPUT AND THERE WAS CONSENSUS AMONG A LARGE MAJORITY OF THOSE WHO ATTENDED EACH MEETING BEFORE MOVING ON TO THE NEXT ISSUE.]

I WAS A MEMBER OF THE ADVISORY COMMITTEE AND AM SATISFIED WITH THE COMMITTEE PROCESS. THERE REALLY WAS CONSENSUS ON MOST ISSUES IN THE PLAN. A WRITTEN STATEMENT FROM ANOTHER COMMITTEE MEMBER CONCURRED WITH THIS POINT OF VIEW AND CITED SEVERAL IMPROVEMENTS THAT WILL BENEFIT THE TOWN.

AS AN ADVISORY COMMITTEE MEMBER, I AM HAPPY WITH THE COMMITTEE PROCESS. IT PROVIDES DIRECTION TO THE STATE ON FUTURE HIGHWAY PLANNING.

I'M A COMMITTEE MEMBER AND A LIFE-LONG RESIDENT OF GAGE GIRLS ROAD AND HAVE SEEN THE GROWTH OF TRAFFIC IN THE CORRIDOR. THERE ARE MANY GREAT IDEAS IN THE PLAN THAT CAME FROM THE COMMITTEE PROCESS, BUT SOME IDEAS CAN USE MORE WORK. OVERALL, I THINK THE PLAN IS VERY POSITIVE.

## **OTHER COMMENTS**

WHAT METHOD WAS USED FOR THE TRAFFIC PROJECTIONS? [THE PROJECTIONS WERE BASED ON THE REGIONAL TRAFFIC MODELS AT NASHUA REGIONAL PLANNING COMMISSION AND SOUTHERN NEW HAMPSHIRE PLANNING COMMISSION, WHICH AGREED

FAIRLY WELL. THEY ARE BASED ON HISTORIC GROWTH AND A CONSIDERATION OF LAND DEVELOPMENT IN THE REGION.]

DID THE TOWN GET ITS MONEY'S WORTH FROM THE STUDY? DID YOU LOOK AT LOCAL TRAFFIC STUDIES FOR THE SIDE STREETS? THERE ARE ERRORS IN THE BASE MAP IN THE NEWSPAPER SUMMARY. [DETAILED TRAFFIC STUDIES WERE IN FACT CONDUCTED. THE SUMMARY MAP IS A SCHEMATIC INTENDED TO GIVE AN OVERVIEW OF THE CORRIDOR, NOT THE BASE MAP USED FOR DETAILED ENGINEERING.]

I LIKE THE PEDESTRIAN ROUTES PROPOSED IN THE PLAN. BEDFORD NEEDS MORE SIDEWALKS.

THE PLAN IS A GOOD START BUT NEEDS MORE STUDY AND REFINEMENT.

I DON'T SEE TRAFFIC IMPROVEMENTS IN THE PLAN, ONLY AESTHETICS.

KEEPING CARS ON ROUTE 101, IMPROVING SAFETY, AND IMPROVING AESTHETICS ARE ALL GOOD OBJECTIVES.

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## Appendix B

Land Use and Economic Impacts of the Route 101 Conceptual Transportation Improvements, prepared by RKG Associates, Inc.

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**DRAFT INTERIM REPORT**

**Land Use and Economic Impacts  
of the  
Route 101 Conceptual Transportation Improvements**

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## **I. Introduction**

This report presents an economic analysis of Route 101 in Bedford with regard to transportation improvements that are currently being considered for the corridor. The analysis addresses three main topics. The first is an evaluation of economic conditions in the local and regional markets as they pertain to the Route 101 corridor. At the local level the analysis focuses on how much non-residential development has been absorbed along the corridor, versus other locations in Bedford, over the past decade. This analysis relied primarily on information from the town's assessment database, as well as field surveys and other market research. The assessment data used is from 1998/99, and while it may not represent current totals it is considered to be representative of the town's overall rate of development and relative tax base distribution.

From a regional economic perspective, the Route 101 corridor, and Bedford as a whole, were evaluated within the context of the greater Manchester metropolitan area. This analysis examined overall growth in the number of establishments and total employment, with a particular focus on the office and retail sectors of the economy. These two business sectors were highlighted because they are the primary ones that comprise non-residential land uses along the Route 101 corridor.

The second major area of analysis estimates future non-residential development potential along the corridor. This build-out analysis was conducted based on two alternative scenarios. The first looks only at the potential that exists for the remaining undeveloped, commercially zoned land along the corridor. The second scenario allows for the possibility that all frontage land along the roadway may eventually evolve into commercial land uses due to changing conditions along the corridor and within the region.

The final portion of the report is devoted to a discussion of the potential impacts associated with highway improvements such as the one being considered for the Route 101 corridor. The analysis covers both the direct and secondary impacts related to highway improvement projects and highlights potential impacts, both positive and negative, that could result from the conceptual corridor improvements being considered in Bedford.

## **II. Major Findings and Conclusions**

- From an economic perspective, the Route 101 and Route 3 corridors are the two primary sub-markets within Bedford's overall economy. Although Route 101 is an important component of this economy, it is a secondary market, in comparison to Route 3, in terms of building square footage and assessed value of property.
- The mix of goods and services on Route 101 represents more of a local commercial center, especially for retail uses, while Route 3 fulfills more of a regional role within the greater Manchester area.

- There is approximately 3.7 million square feet of non-residential building space on the Route 101 and Route 3 corridors, with a total assessed value of \$254 million. Route 101 accounts for approximately 22% of both the total building square footage and assessed value.
- The Route 101 corridor has approximately 813,000 square feet of non-residential building space. Approximately 70% of that is office space while 30% is non-office space (i.e. retail, services, etc.).
- The greater Manchester metropolitan area experienced solid growth over last decade and Bedford contributed significantly to that growth with the addition of 930,000 square feet of non-residential building space. Only a small percentage of this new construction (approximately 22,000 square feet) occurred on the Route 101 corridor. At the same time, the corridor seems to have maintained a fairly stable core of businesses which suggests it has a solid base of local customers.
- It is estimated that there is a potential for the construction of an additional 512,000 square feet of non-residential building space on the remaining undeveloped, commercially zoned land along the Route 101 corridor. It is also estimated that existing commercial developments have the potential to add another 128,000 square feet through building expansion. Based on historic absorption trends it is likely that the construction of all this space would take at least twenty years or more.
- The long-term redevelopment of the entire Route 101 corridor, including currently developed parcels, could conceptually support an estimated two to three million square feet of non-residential building space. This is most likely to occur in an incremental manner over a long period of time and would result from a variety of factors including changing market conditions, decisions of private land owners, actions by local land use boards, and increasing traffic volumes on the corridor.
- The economic impacts of highway improvements on businesses are often both positive and negative in nature. The proposed improvements to the Route 101 corridor would be expected to have an overall positive impact on area businesses since it would result in increased accessibility due to increased traffic capacity. The value of land along the corridor would also be expected to increase for the same reason.
- Some businesses are considered more traffic dependent, such as gas stations, fast food restaurants and lodging facilities, and reliant on "pass-by" traffic for a greater percentage of their sales. These businesses have a greater potential to be negatively impacted by transportation improvements currently being considered for the Route 101 corridor. However, some research has determined that the perceived impacts on business related to the installation of raised medians was much worse than the *actual* impacts.

### **III. Description of Study Area**

The analysis presented in this report focuses on the Route 101 corridor in Bedford, New Hampshire. More specifically, the study area includes the segment of this roadway which is bounded by the Route 114 intersection on the east and the Amherst town line on the west. The economic and land use analyses conducted for the corridor includes all of the properties that have frontage along this segment of the highway, as well as all commercial properties that have been developed in proximity to the corridor, but which may not have direct frontage on the roadway.

The study area, as defined above, includes a total of 169 parcels containing approximately 800 acres of land. Existing development along the corridor is comprised of a mixture of land uses that include residential, commercial, and institutional activities, as well as a modest amount of undeveloped land.

From a regulatory standpoint land development along the corridor is governed by the towns's Zoning Ordinance. The Ordinance divides the study area into three primary zoning districts which include the Residential Agriculture, Commercial, and Office zoning districts. A portion of the study area is also encompassed by a Historic District Overlay zone.

### **IV. The Economic Role of the Route 101 Corridor**

Route 101 is a very important transportation corridor from an economic standpoint both within Bedford and the State of New Hampshire. Within the state-wide transportation system Route 101 is the primary east-west corridor in the southern tier of the state. However, due to the varying design of the highway as it traverses the state its function changes in different regions. For example, the eastern half of the highway, a portion of which is located between Interstate 95 and the Route 114 intersection in Bedford, is a four-lane, restricted access highway. The local function of the highway in these communities is limited and serves primarily as a conduit for the movement of commuters, residents and tourists, as well as goods and services. The highway functions very differently along its western half which lies between Bedford and the City of Keene. Although it is still important from a regional perspective for commerce it occupies a dual role as a major arterial within the communities through which it passes; it is no longer a totally restricted access roadway and therefore, abutting land uses have evolved over time within this context. These land uses, which include all categories of municipal activities (i.e. residential, commercial, governmental, etc.), often have direct access from their property onto the Route 101 corridor. The study area in Bedford functions within this dual role category operating both as a "main street" within the community as well as a connecting link in the regional transportation network.

#### **1. The Role of Route 101 Within the Local Economy**

Most of the commercial, industrial and retail land uses in Bedford are concentrated along two primary roadways; Route 3 (South River Road) and Route 101. Although there are other small nodes

of non-residential development, such as in the Donald Street area, these two corridors represent the town's economic engine in terms of employment and non-residential property tax base.

While these two corridors contain many of the same types of non-residential land uses, they also have some distinct differences in terms of their character and functionality within the market area. The Route 101 sub-market area is an amalgamation of retail, service and office uses, that have developed over a period of several decades, in scattered zoning districts along the length of the corridor. These types of developments range from suburban office parks to retail strip centers to free-standing establishments. Most of the existing development along the corridor was present prior to 1990 with relatively few new buildings constructed over the past decade.

#### **A. Comparison of Non-Residential Development and Assessed Value**

Total non-residential building space along the Route 101 corridor is approximately 813,000 square feet (SF), as illustrated in Table 1. Approximately 70% ( 580,000 SF) is office space, while 30% (233,000 SF) is non-office space (i.e. retail, services, etc.). About 70% of the office stock could be classified as Class A space (higher quality, multi-story, masonry and glass structures) for this market, while 30% is Class B or lower (wood-framed structures, 1 to 2 stories, and free standing buildings). Based on a field survey of existing office space it is estimated that the vacancy rate is approximately 20%. The majority of the vacancies are in the Class A structures. The predominant use of the corridor's office space is by the FIRE (finance, insurance and real estate ) and Professional Services sectors along with a small amount of technology oriented users.

The non-office commercial uses along the corridor are, for the most part, a mixture of local goods and services, combined with some specialty retail/wholesale establishments, as well as a number of highway-oriented establishments such as restaurants and gas stations. Few, if any, of the businesses would be classified as regional facilities, although many of the businesses are certainly supported by a larger customer base than that which exists in Bedford alone. A number of the businesses along the corridor would typically be considered locally oriented in nature despite their highway location. These include a bank, cleaners, hardware store, non-chain grocery store, and pharmacy.

In contrast to Route 101, the Route 3 corridor has substantially more non-residential building space and has been a much more active sub-market within the community, especially in terms of new construction, over the last decade. Another distinction is that the Route 3 sub-market also contains a significant amount of industrial space, both manufacturing and non-manufacturing in nature.

The analysis of the Route 3 corridor has been further refined into a northern and southern section, with Route 101 as the dividing line. While both sections have an equivalent amount of office space, as shown in Table 1, the northern segment is much more retail oriented while the southern section has a strong industrial component, but much less retail space.

Table 1  
Comparison of Non-Residential Square Footage and Assessed Value  
in the Route 101 and Route 3 Sub-Market Areas  
Bedford, New Hampshire - 1998

	Building SF	% Total	Assessed Value (in millions)				Assessed Value Per SF
			Buildings*	% Total	Total L & B	% Total	
<b>ROUTE 101</b>							
Commercial Office	580,037	71.3%	\$31.5	72.6%	\$39.1	70.3%	\$54.45
Commercial Non-Office	233,857	28.7%	\$11.9	27.4%	\$16.5	29.7%	\$51.05
<b>TOTAL</b>	<b>813,894</b>	<b>100.0%</b>	<b>\$43.4</b>	<b>100.0%</b>	<b>\$55.6</b>	<b>100.0%</b>	
<b>ROUTE 3 NORTH</b>							
Commercial Office	606,632	40.6%	\$38.6	44.7%	\$49.8	42.7%	\$63.71
Commercial Non-Office	886,086	59.4%	\$47.7	55.3%	\$66.9	57.3%	\$53.91
<b>TOTAL</b>	<b>1,492,718</b>	<b>100.0%</b>	<b>\$86.3</b>	<b>100.0%</b>	<b>\$116.7</b>	<b>100.0%</b>	
<b>ROUTE 3 SOUTH</b>							
Commercial Office	635,579	80.2%	\$34.6	79.5%	\$43.9	76.7%	\$54.44
Commercial Non-Office	157,202	19.8%	\$8.9	20.5%	\$13.3	23.3%	\$57.23
<b>TOTAL</b>	<b>792,781</b>	<b>100.0%</b>	<b>\$43.5</b>	<b>100.0%</b>	<b>\$57.2</b>	<b>100.0%</b>	
<b>ROUTE 3 SOUTH</b>							
Industrial Manufacturing	418,727	70.4%	\$13.5	67.5%	\$17.1	68.1%	\$32.42
Industrial Non-Manufacturing	176,177	29.6%	\$6.5	32.5%	\$8.0	31.8%	\$37.09
<b>TOTAL</b>	<b>594,904</b>	<b>100.0%</b>	<b>\$20.0</b>	<b>100.0%</b>	<b>\$25.1</b>	<b>100.0%</b>	

\* Does not include outbuildings or other property improvements  
Source: Assessment records, Town of Bedford, 1998

The Route 3 north sub-market contains approximately 606,000 SF of office space (40%) and 886,000 SF of non-office uses (60%). The retail component of this sub-market is not only much larger than the Route 101 sub-market, but is also much more regionally oriented. Due to its location at the intersection of two major highways (Route 101 and the Everett Turnpike) this area has attracted a regional shopping center, big box retail stores, super grocery stores, and various national chain retail stores and restaurants. Therefore, while this sub-market does represent competition for the Route 101 retail market, Route 3 is much more of a regional shopping area that attracts customers from the greater Manchester metropolitan area.

From an assessed value standpoint, Route 101 contains approximately \$31.5 million in office buildings while Route 3 north office space totals \$38.6 million. On a square foot basis, office space on the Route 101 corridor is valued at \$54.45 per square foot and Route 3 office space at \$63.71 per square foot. This is a rather surprising disparity and may be attributable to a higher percentage of Class A space on the Route 3 corridor.

Non-office commercial building space on the Route 101 corridor has an assessed value of approximately \$11.9 million and a square foot value of \$51.05. On the Route 3 corridor, the same

class of buildings has a considerably higher total assessed value of approximately \$47.7 million with a comparable square foot value of \$53.91.

The other portion of the Route 3 corridor, the Route 3 south sub-market, has a total of approximately 792,000 square feet of commercial building space. As shown in Table 1, about 635,000 SF (80%) of that total is office space with only 157,000 SF (20%) designated as non-office space. The assessed value of office space, the majority of which would be categorized as Class A space, is approximately \$34.6 million, with a square foot value of \$54.44. In contrast, the value of non-office commercial space is \$8.9 million with a square foot value of \$57.23. Interestingly, two-thirds of the non-office space value, approximately \$6.0 million in value, is attributed to an Alzheimers care facility that was constructed in 1998. This 50,000 square foot facility has an assessed value per square foot of \$120, which substantially increased the average square foot value along this section of the corridor.

Route 3 south also has a significant industrial component, containing approximately 600,000 square feet of building space, not found elsewhere in the community. Roughly 70% of this space is primarily manufacturing oriented while 30% is non-manufacturing, or a combination of the two. Total assessed value of industrial buildings in this sub-market is approximately \$20 million.

In summary, Route 101 represents a significant portion of the town's non-residential property tax base. As illustrated in Table 2, there is approximately 3.7 million square feet of non-residential building space on the Route 101 and Route 3 corridors, with a total assessed value of \$254 million. Route 101 accounts for approximately 22% of both the total building square footage and assessed value. Within the office sector however, Route 101 has a more prominent role. The study area accounts for almost 32% of total office space and 29% of the assessed value in this category. In the non-office category the Route 101 corridor has a reduced presence in comparison to Route 3. Total square footage of non-office space on the Route 101 corridor represents only 18% of the total in this category and 17% of the assessed value.

## **B. Recent Development Trends**

Another useful perspective for comparing the two primary sub-markets within Bedford involves an examination of the amount of development that has occurred in these areas over the last decade. Based on an analysis prepared for the town's recently completed master plan, approximately 930,000 square feet of commercial building space was constructed between 1988 and 1998.<sup>1</sup> Of that amount, approximately 22,000 square feet was located on the Route 101 corridor, of which about 10,000 square feet was office space. Total assessed value of buildings added to the corridor during this time period was approximately \$1.1 million. In comparison, over 900,000 square feet was added along

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<sup>1</sup>Strategic Master Plan Update 2000, Bedford, New Hampshire, pg. 5-13, prepared by RKG Associates, Inc., March 2000.

the Route 3 corridor, in the combined north and south sub-markets, which had a total assessed value of approximately \$44.8 million.

Less than 100,000 square feet of the Route 3 development between 1988 and 1998, represented new office construction. The majority of the remaining development during this period was comprised of retail uses (500,000 SF), nursing home facilities (110,000 SF), and industrial manufacturing facilities (133,000 SF).

It should be noted that these square footage figures represent new building construction only and does not account for any additions to existing buildings that may have occurred. It should also be recognized that the Route 101 corridor has considerably less land available for potential commercial development than the Route 3 corridor. This fact, combined with the availability of municipal sewerage along the Route 3 corridor, creates a greater likelihood that the Route 3 sub-market would develop at a faster rate.

### **C. Employment**

Based on the most recent information available from the N.H. Department of Employment Security (DES), the total workforce in Bedford, as of 1999, was 10,200. This figure represents the average annual number of employees, identified through the Covered Employment reporting program, who work at private sector businesses within the town. According to DES, this workforce was employed at a total of 785 establishments.

It is difficult to obtain employment data at a smaller geographic unit than the municipal level due to confidentiality reasons. However, it is possible to estimate the number of employees, by using multipliers based on building square footage, that work in particular business sectors. In so doing it is possible to ascertain how businesses along the Route 101 corridor contribute to total employment within the community. These multipliers are typically expressed by a low and high range to allow for variations across building types.

Based on standard multipliers developed by the U.S. Energy Administration, it is estimated that 928 to 1,546 workers could be employed at office facilities along the Route 101 corridor, if all building space were fully occupied. Total employment within non-office types of businesses is estimated to range between 196 and 326 employees. Therefore, total employment for all business along Route 101 is estimated at 1,124 to 1,872 employees. This represents approximately 11%-18% of the total workforce within the community.

## **2. The Role of Route 101 Within the Regional Economy**

This section provides an overview of changes that have occurred in a number of regional economic indicators over the last decade. For the purpose of evaluating Route 101's economic role from a

regional perspective, the Manchester Metropolitan Statistical Area (MSA) is considered to be the most appropriate geographic area of direct influence. The MSA includes the central city of Manchester as well as the towns of Bedford, Allenstown, Auburn, Candia, Goffstown, Hooksett, Londonderry, and Weare. This region is considered to be most appropriate from a retail competition and real estate supply perspective, although Bedford's customer base and work force are being drawn from a broader area than the MSA.

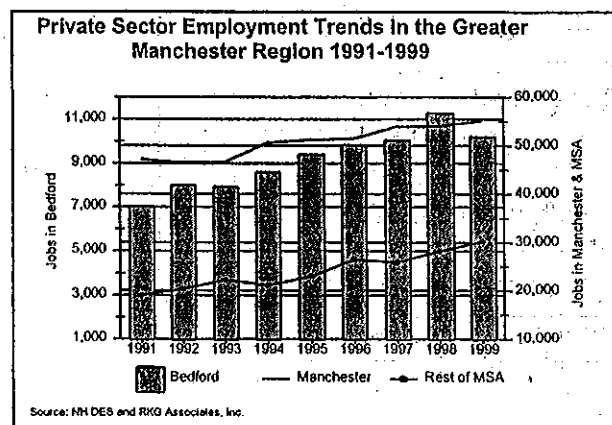
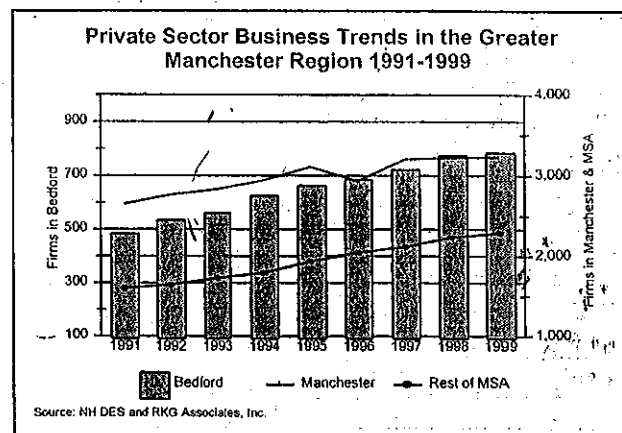
The indicators examined included changes in the total private sector employment and number of establishments, as well as within the office and retail business sectors. The data presented, which was obtained from the N.H. Department of Employment Security's Covered Employment program, includes years 1991 through 1999.

This type of information is not readily available for businesses along the Route 101 corridor due to privacy concerns. However, the town and regional level of information presented here can be used in conjunction with assessment data presented in the previous section to provide some perspective on how Route 101 fits within the regional economy.

#### A. Total Employment and Establishments

The number of businesses (excluding government entities) operating in Bedford has increased by 301, from 484 firms in 1991 to 785 in 1999, representing an average annual growth rate of 6.2% during this eight year time frame. Business growth in the rest of the MSA occurred at a somewhat slower rate of 4.5% during this period, while Manchester grew at an even slower rate of 2.5%. The faster growth rate in towns outside the central city indicates that suburban areas captured a larger share of business growth than did the historic employment centers. This is partly attributed to the availability of more land in suburban locations.

From an employment standpoint, Bedford's private sector employment increased from 7,014 jobs in 1991 to 10,200 jobs in 1999. This is a gain of 3,186 jobs which represents a 4.8% annual rate. The rest of the MSA, outside the city of Manchester, increased at a faster pace of



5.9% during this period, with the town of Londonderry experiencing the highest rate of growth. Jobs in Manchester increased by nearly 8,000 positions during this period, which was less than the 11,200 jobs in the rest of the MSA. Although the average annual increase in Manchester during this eight year period was only 1.9%, the city remains the major employment center in the central New Hampshire region.

### B. Office Sector Trends

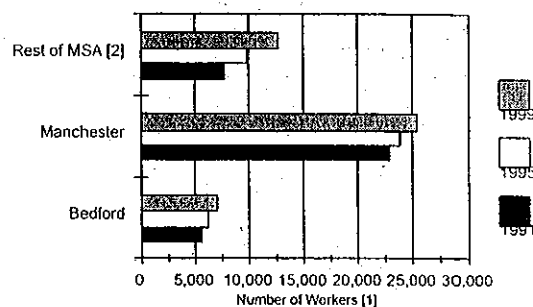
Between 1991 and 1999, Bedford experienced an increase of 210 office sector firms (defined here as those in the FIRE and Service sectors), or a gain of 68.9%. The communities in the rest of the Manchester MSA saw a net gain of 411 new businesses during this period, reflecting a 56.3% increase. The number of office sector businesses in Manchester increased by only 21.8%, but the city still retained the highest total number of establishment, within this sector, when compared to the rest of the MSA.

Bedford's office sector employment increased by 26.7% between 1991 and 1999, which represents almost 1,500 new net jobs. The other communities in the rest of the MSA experienced a 64.9% increase, as a result of more than 4,915 new jobs. Most of this increase occurred in the latter part of the 1990s. Manchester's employment base increased by 11.0%, between 1991 and 1999, with approximately 2,500 net jobs in this industry sector.

### C. Retail Sector Trends

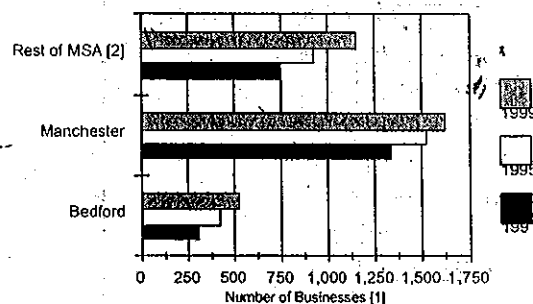
The retail sector within the Manchester MSA also experienced significant percentage growth over the past decade. Losses during the latter half of the decade, however, kept overall increases relatively low. Between 1991 and 1999, communities in the rest of the MSA saw a net gain of only 38 new retail establishments, reflecting a 16.5% increase. Although Bedford's retail growth rate

**Office Sector Employment Trends in the Greater Manchester Region 1991-1999 [1]**



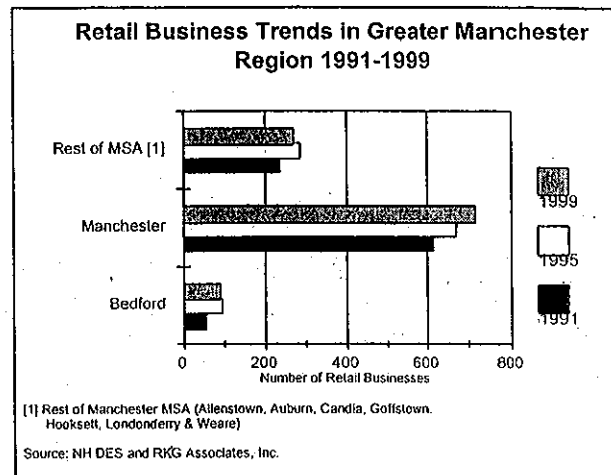
[1] FIRE & Services Industries  
 [2] Rest of Manchester MSA (Allentown, Auburn, Candia, Goffstown, Hooksett, Londonderry & Weare)  
 Source: NH DES and RKG Associates, Inc.

**Office Sector Business Trends in the Greater Manchester Region 1991-1999 [1]**

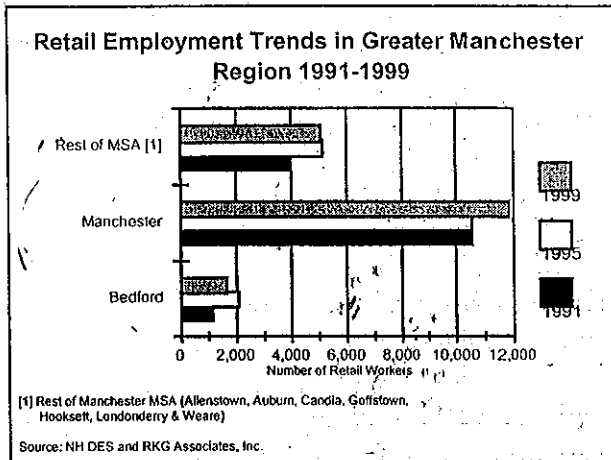


[1] FIRE & Services Industries  
 [2] Rest of Manchester MSA (Allentown, Auburn, Candia, Goffstown, Hooksett, Londonderry & Weare)  
 Source: NH DES and RKG Associates, Inc.

was approximately 67% during that time, the town actually had a net decrease of five establishments between 1995 and 1999. This loss, and the MSA's net loss of 17 businesses during that time, reflects the impact of recessionary conditions at the beginning of the 1990s. Reduced sales contributed to a reduction and consolidation of establishments within the suburban markets. However, the City of Manchester experienced a positive growth in retail establishments throughout the decade with a net increase of 99 businesses, a 16.2% increase. Part of this growth was due to the expansion of a major regional shopping mall, but may also have reflected a temporary return by retailers to core shopping areas during leaner times.



Employment within the retail sector experienced a similar seesaw type of growth, despite having overall positive gains for the decade. Between 1991 and 1999, Bedford's retail employment increased by 504 jobs, reflecting a 46% gain. However, the town lost 412 retail jobs between 1995 and 1999. The rest of the MSA experienced a 30.0% increase for the decade, with a net increase of approximately 1,150 jobs. Manchester's retail employment base increased by 11.5% between 1991 and 1999, as a result of 1,210 new jobs. All of these jobs were added between 1995 and 1999.



#### D. Summary of Regional Trends

The trends discussed in the preceding section indicates that, based on overall business and employment growth, economic conditions within the Manchester MSA have been favorable over the last decade. The data also indicates that Bedford's economy has contributed significantly to this growth.

Office growth in the MSA over the last decade has shifted to more suburban locations and away from the central city. This is probably partially due to the availability of land in outlying towns, but also suggests that employers are concerned about transportation access and somewhat less inclined to seek new in-fill sites in urbanized areas. Although Bedford captured its share of this regional office

growth, the Route 101 corridor was not an integral part of this regional expansion. This fact is at least partially due to the limited amount of sites available in the study area.

Regional trends in the retail sector were somewhat less favorable over the last decade. Although overall change in employment and the number of establishments was positive, net losses were experienced in MSA towns in the latter half of the decade due to closures and consolidations. Despite this fact, Bedford's total square footage of retail expanded and the Route 101 corridor seems to have maintained a fairly stable core of businesses. This suggests that businesses along the corridor have a solid local base of customers which would make them less susceptible to fluctuations of the broader regional market.

## **V. Non-Residential Development Potential for the Route 101 Corridor**

This section provides an overview of possible future development potential along the Route 101 corridor. This potential has been evaluated based on two different scenarios. The first scenario looks at development potential on parcels located in existing commercial districts along the corridor. The second scenario examines the development potential along the corridor without any constraints imposed by existing zoning or physical factors. Both scenarios present conceptual growth forecasts for the corridor over the next 20 years based on historical absorption levels in Bedford, as well as potential changes in existing market demand.

### **1. Development Potential Under Existing Zoning**

Commercial zoning districts within the Route 101 corridor study area contain a total of approximately 294 acres, of which 85 acres within these districts, approximately 28% of the total, are undeveloped. There are two primary types of zoning districts designated on the town's official zoning map; the Commercial and Office districts. However, two additional parcels (containing less than 3 acres) designated as Highway Commercial. These zoning districts have a configuration which can be described as four non-contiguous "islands" dispersed along the length of the highway. Based on the town's assessment records, as well as a field survey of the study area, it is estimated that, of the remaining undeveloped land area, approximately 70 acres are in the Commercial zone and 15 acres in the Office zone. Almost half of the total acreage is contained in two adjacent parcels located at the intersection of Route 101 and Route 114.

Potential development on these remaining 85 acres has been estimated based on a floor area ratio (FAR) method. A FAR represents the ratio of building square footage to lot size. For example, if a 10,000 square foot building was located on a 100,000 square foot lot, the FAR would be 10% (100,000 SF divided by 10,000 SF). The FAR for non-residential development varies by type of land use since certain types of uses, such as manufacturing plants or warehouses, typically occupy much more of a parcel than retail uses, for example. Analysis conducted during the town's recent master plan update process calculated the average FAR for each zoning district within community. These

FAR calculations have been used to evaluate development potential within the Route 101 study area.

The Office zoning districts in Bedford have an average FAR of 18%. Applying this percentage to the remaining 15 acres of undeveloped land suggests that an additional 117,000 square feet of building space could potentially be constructed. Commercial zoning districts in Bedford, however, have an FAR of only 10%. This suggests that an additional 296,000 square feet of building space could be constructed on vacant commercially zoned land along the Route 101 corridor. Combined, vacant land in these two zoning districts is estimated to have the potential for a total of 412,000 square feet of additional building space based on the average FARs for Bedford.

Discussions with the Town Planner in Bedford have revealed that there is currently a conceptual proposal to construct 250,000 square feet of retail space on the 34 acre parcel of land at the intersection of Routes 101 and 114, which is in the Commercial district. This proposed square footage is larger than the amount that would be derived using the FAR method, which would be closer to 150,000 square feet. The reason for this is that this large parcel is an anomaly in the Commercial district where most previously developed parcels are considerably smaller in size. To reflect this factor, the total estimated build-out for the corridor has been increased by 100,000 square feet, which brings the potential total of additional building square footage to approximately 512,000 square feet.

There is also the potential for future development through the expansion of existing commercial buildings located within the study area corridor. These so-called *underdeveloped* parcels have been developed at an FAR that is lower than the average within their respective districts. Analysis completed for the master plan estimated that there was the potential for an additional 90,000 square feet of expansion in the Commercial district and 38,000 square feet in the Office district. This represents the potential of an additional 128,000 square feet in commercial building expansion for parcels along the Route 101 corridor.

The time frame for this build-out will depend on future local and regional market conditions, as well as other factors such as infrastructure availability and site constraints. Over the past decade (1988 to 1998), Bedford absorbed approximately 930,000 square feet of commercial and industrial building space. This represents an annual average of 93,000 square feet for the town as a whole. The majority of this space was added along the Route 3 corridor with a relatively small amount, approximately 2,000 to 3,000 square feet on an annual average, constructed on the Route 101 corridor.

The town's recent master plan estimated that build-out of the remaining commercially and industrially zoned land would take approximately 20 to 25 years. While this is considered a reasonable time-frame for the town as a whole, it is possible that the Route 101 corridor could achieve build-out more quickly given the limited amount of developable land available. This likelihood is supported by the conceptual development proposal for the construction of 250,000

square feet of space at the intersection of Routes 101 and 114, which would use up almost half of the remaining developable land along the corridor. In fact, this proposed project, which includes a super grocery store, big box retailer and restaurant, could significantly change the nature of the Route 101 sub-market within the community. It is very possible that the development of this site would create an attraction for additional retail development along the corridor that does not presently exist with the current retail base.

## **2. Development Potential Under Revised Zoning Regulations**

As discussed in the preceding section, there is a relatively small amount of undeveloped land remaining in the commercial zoning districts along the Route 101 corridor study area. Potential development on vacant land within these districts has been estimated to be approximately 512,000 square feet of building space. Although this potential development would constitute full build-out under existing zoning, it is possible that land use regulations could be altered in the future due to changing circumstances along the corridor.

For example, there are about 70 parcels that abut the Route 101 corridor which are presently developed with single family homes. It is not uncommon for a highway like Route 101 to lose its desirability as a residential location over time due to increasing traffic volumes and associated noise and visual disruptions. As these conditions evolve, impacted houses may begin to decline in value, have longer for-sale periods, and often transition from owner-occupied to renter-occupied units. When confronted with these circumstances, communities are often faced with determining if existing land use controls, such as zoning regulations, are still appropriate. Or, if a regulatory change is warranted to allow more compatible uses to be established that reflect current conditions along the roadway.

Another case in point involves the proposed development at the Route 101/114 intersection which would include 250,000 square feet of big box retail, supermarket and restaurant space. It is very likely that a regional development of this magnitude, if approved, could generate an accelerated demand for additional retail-related space along the corridor. This type of development will be a significant attraction on the corridor and other follow-on businesses, such as auto services or restaurants, may want to be located in fairly close proximity. It is possible that development of the initial 250,000 square feet will result in a demand for one-third of that space (75,000 to 85,000 square feet) in additional spin-off commercial land uses. This demand would be primarily focused at the intersection of the two highways and within a mile along the corridor, which is about the maximum area of influence that this type of regional shopping center is likely to have.<sup>2</sup>

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<sup>2</sup>This discussion should not be interpreted as an evaluation of this particular type of land use activity. It is primarily presented as an indication of market perception about this portion of the Route 101 corridor as a retail location.

Obviously, the circumstances described above would necessitate the rezoning of land along the corridor and, most likely, the assemblage and redevelopment of existing residential properties as well. This is not an uncommon occurrence given sufficient market demand combined with improvements to the transportation system. In fact, this conclusion was one of the findings of a recent state-wide study of sprawl-related development in New Hampshire.<sup>3</sup> This study, which examined changes in development patterns between 1974 and 1992, identified two important conclusions with regard to this issue. The first is that as population growth increased the demand for commercial goods and services, communities tended to expand their commercial zoning districts in order to support this growth and maximize their non-residential tax base. The extension of these commercial districts typically took the form of "ribbons of development" along the frontage of existing arterial highways, which in many cases, where State highways.

The second conclusion was that highway improvements, combined with regional growth, will often accelerate and intensify this type of development pattern. This fact was clearly illustrated by a case study conducted in the Exeter/Stratham area. These two towns were served by a two-lane State highway (the old Route 101), along the frontage of which the communities had extended their commercial zoning districts over a 20 to 30 year period. Eventually, a new Route 101 "bypass" was constructed (which is the present four-lane, restricted access section of the highway) with an interchange to the old Route 101 near the Exeter/Stratham town line. This interchange, combined with the region's rapid population growth, has resulted in commercial strip development along several miles of the old Route 101 (which is now Route 33) corridor in both communities.

Perhaps a more direct comparison to the Route 101 study area in Bedford can be drawn to changes that have occurred along the Route 101A corridor. This highway is a regional arterial that runs through the communities of Nashua, Merrimack, Amherst and Milford. It also provides a major transportation link from the Route 101 bypass in Milford to the Everett Turnpike in Nashua. Over the last 30 years this roadway has evolved from a relatively undeveloped, two-lane facility to a heavily developed, four- and five-lane, suburban corridor. A recently completed study<sup>4</sup> by the Nashua Regional Planning Commission provides an interesting overview of the changes that have occurred to the Route 101A corridor due to growth and land use decisions made over the last several decades.

The corridor contains a mix of development types that span the land use spectrum. The portion of the highway in Nashua contains large retail establishments, major office and manufacturing sites, as well as numerous condominium complexes. The highway passes through a very short section of

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<sup>3</sup> *Managing Growth in New Hampshire - Changes and Challenges*, NH Office of State Planning and RKG Associates, Inc., December 2000.

<sup>4</sup> *Route 101A Corridor Master Plan and Improvement Program*, Nashua Regional Planning Commission et. al., Interim Report - November 2001.

the town of Merrimack but still has attracted the development of big box retail, a commercial plaza, and a mixed use development containing offices and a movie theater. The stretch of highway in Amherst is characterized by smaller, retail establishments, office space, and single family homes set back from the corridor, but also includes a national retail chain superstore. There are also three post-secondary educational institutions within the corridor. According to the study, there are a total of 439 individual establishments located directly along the corridor with the greatest potential for future development in the town of Amherst.

Development along the corridor has occurred incrementally over the last 30 to 40 years. Over that time period, average daily traffic volumes have increased from 3,862 vehicles per day (VPD) in 1961 to 30,583 VPD in 2000. Zoning along the corridor is a patchwork of residential, commercial and industrial districts. The majority of frontage along the corridor, however, is zoned for industrial uses. It is interesting to note that many of the commercial uses along the corridor in Nashua were reportedly established within the industrial districts by means of variances granted by the city's Zoning Board of Adjustment.

The combination of zoning schemes designed to attract non-residential tax base expansion and significant increases in traffic volumes has led to the need for widening of the highway over time. In the 1970s, the road was widened to a five-lane cross section for its entirety in Nashua, through Merrimack, and into a portion of Amherst. The remaining section in Amherst, up to the Route 101 bypass, was completed by 1990. Throughout this time period numerous other transportation improvements have been made to the corridor, in conjunction with the widening, that include access management, signalization upgrades, and upgrading of adjoining roadway links.

The transformation of the Route 101A corridor represents a clear example of how land use patterns along a highway can gradually change over a long period of time. It also illustrates that land use decisions made in one community, such as rezoning up to an adjoining town line, can affect land use decisions in an adjacent community.

As indicated in the Route 101A case study, one factor which can influence land use changes over time are decisions made by land use boards regarding development proposals within the community. Although local residents may determine, by means of the zoning ordinance, that certain areas are best suited for certain types of development or land uses, land use boards have the authority to grant waivers and variances, under specific circumstances, if deemed appropriate in certain cases. In particular, a Zoning Board of Adjustment (ZBA) has the authority to grant variances to the requirements of a community's zoning ordinance if the board determines that the ordinance restricts the property from being used in a reasonable manner. Although this test of "reasonableness" has long been one of the criteria for granting a variance in New Hampshire, a recent Supreme Court decision has expanded how the term reasonable should be interpreted by the local boards.

In the decision of *Simplex Techs, Inc. v. Town of Newington*, the Court found the following in terms

of requests for zoning variances. Rather than a property owner having to establish that he or she cannot use the property in any reasonable way in order to establish unnecessary hardship, applicants for variance may now establish unnecessary hardship by proof that: (1) a zoning restriction as applied to their property interferes with their reasonable use of the property, considering the unique setting of the property in its environment; (2) no fair and substantial relationship exists between the general purposes of the zoning ordinance and the specific restriction on the property; and (3) the variance would not injure the public or private rights of others.<sup>5</sup>

In essence, this decision suggests that the ZBA must now evaluate a request for a use variance based on an interpretation of the intent of a particular zoning district's purpose and to what extent has that purpose been fulfilled by previous development within the district. For example, if the variance request is for a commercial use in an industrial district, the board will need to consider if the district has remained in tact for industrial uses whereby the granting of the variance would not serve the purpose of the ordinance. If, however, the district is already riddled with commercial uses and there are few suitable sites remaining for industrial development then the variance may be granted since there is no fair or substantial relationship between the purpose of the ordinance and the specific restrictions applied to the property in question.<sup>6</sup>

The second aspect of this decision, and perhaps the one which is more pertinent to the Route 101 corridor, is how the unique setting of a property is defined within the context of the zoning ordinance. For example, a situation may exist where a residential property, which is located in a residential zoning district that is on the borderline of a commercial zoning district, is requesting a variance to create a commercial use on the property. If the residential district is largely in tact and does not have a lot of grandfathered or non-conforming commercial uses, then a granting of the variance would probably be inappropriate. If, however, there were many commercial uses in the zone and the *character of the neighborhood* was no longer residential in nature, then it might be reasonable to grant the variance on the basis that "no fair and substantial relationship exists between the general purposes of the zoning ordinance and the specific restrictions on the property." It is this last aspect in this hypothetical case that could be a factor with regard to properties along the Route 101 corridor given its mix of land uses, alternating commercial and residential zoning districts, and how the *unique environment* may be defined at any given location along the highway.

As these examples illustrate, land uses along major arterial roadways have the potential to evolve over time due to the influences of growth, market conditions, regulatory changes and infrastructure decisions. An assessment of this type of long-term redevelopment has been prepared for the Route 101 corridor study area in Bedford based on several assumptions. These assumptions include the following: 1) that zoning regulations will be altered to accommodate future non-residential

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<sup>5</sup>*Simplex Techs., Inc. v. Town of Newington*, \_\_\_ N.H. \_\_\_ 766 A.2d 717 (2001)

<sup>6</sup>*New Hampshire Practice: Land Use and Zoning, 2001 Cumulative Supplement*, Peter J. Loughlin

development; 2) future commercial development will occur on vacant land or through the redevelopment of currently developed properties along the corridor; 3) existing commercial properties along the corridor would remain essentially as they are today; 4) natural constraints, such as wetlands or steep slopes, would not be a significant issue.

Based on these assumptions, 93 parcels along the corridor, which have a total of 478 acres, have been identified for potential long-term redevelopment. Estimating potential build-out of these parcels was done using the floor area ratio method based on an FAR of 10% to 15%. The 10% is the historical average for Bedford in the Commercial zoning district while the 15% is more a typical density for new commercial development in suburban locations. Although this FAR is higher than the historical average in Bedford, it takes into account the possibility that redevelopment of the corridor would occur through the assemblage of larger parcels at densities that are more commonly found in regional commercial development.

Given these parameters, it is estimated that a maximum range of 2.1 to 3.1 million square feet of building space could be added to the corridor through various types of consolidation and redevelopment efforts. This square footage would be in addition to the 512,000 square feet of potential space that could be constructed in the existing Commercial and Office zoning districts along the corridor. Currently, non-residential building space along the Route 101 corridor totals approximately 813,000 square feet. It should be noted that development of the levels discussed here may require the extension of municipal sewer along the corridor.

To place this number in perspective, all commercial and industrial building space along the Route 3 corridor in Bedford totals approximately 2.9 million square feet. Development of the Route 3 corridor has occurred over a time-frame of several decades with approximately one-third of the total square footage being constructed within the last decade. Clearly, total redevelopment of the Route 101 corridor to the levels presented here would take at least as much time, if not more, than the Route 3 corridor.

## **VI. Potential Impacts Associated with Highway Improvements**

There are a wide range of potential impacts associated with highway improvements; most of which are neither completely positive or negative. These potential impacts will vary depending upon the type of improvements being considered and the location of the roadway facility being evaluated. For instance, the potential impacts associated with the construction of a new bypass highway are likely to be very different than those that may occur from the widening of an existing roadway through a downtown business district.

The types of impacts associated with highway improvements are generally grouped within three main categories: economic, social, and environmental. Although there can be some overlap among these three categories they are usually evaluated separately as part of a review process conducted for

highway improvements. A second distinction made regarding the type of impact is whether they are direct or secondary impacts. Direct impacts refer to those that occur as a result of the actual physical construction of the roadway, such as the acquisition of land or buildings. Secondary impacts are not usually the result of actual construction, but often can occur due to the availability of the improved facilities. One example of a secondary impact would be changes to the value of land which abuts a roadway that has been upgraded.

From an economic perspective the potential impacts associated with roadway improvements typically include some or all of the following: impacts on users of the roadway; impacts to businesses and area employment; effects on property values and tax base; changes in land use and land use regulations; parking capacity; and safety concerns.

Although this analysis is primarily focused on economic impacts, it is worth noting other types of potential impacts related to social and environmental issues. Some of the potential social effects of highway projects include: impacts on homes and residential neighborhoods; changes in land use; effects on public facilities and services; safety issues related to pedestrians and bicyclists; impacts related to community cohesion; compliance with municipal plans; and concerns about aesthetics. Lastly, the potential impacts related to environmental concerns include: effects on air and water quality; changes in noise levels; impacts to wetlands; effects on wildlife habitat and endangered species; and impacts to historic structures and archeological sites.

## **1. Economic Impacts of Highway Improvements**

Direct Impacts - User related impacts are direct impacts incurred by operators of vehicles that will be using the roadway under consideration. Since one of the main reasons for undertaking a roadway improvement is to improve its functionality for motorists, user related impacts are usually positive from an economic standpoint. These user related impacts can result in reduced travel times which have a compound effect of reduced vehicle operating expenses. Both types of changes usually result in a positive economic benefit in terms of reduced costs.

The third user related impact involves safety issues. Typically, proposed upgrades of a roadway will have as a major focus improved operating conditions, which can result in improved safety for users of the roadway. Improved safety can result in reduced accident rates which translates into reduced vehicle repair and insurance costs, as well as reduced personal injuries, deaths, and associated medical costs. All of these factors have an economic benefit which is typically found to be positive.

Proposed improvements to the Route 101 corridor in Bedford would generally be expected to have a positive impact for users of the roadway. Savings associated with reduced travel times and operating costs should be positive, albeit marginally. From a safety perspective, the improved facility design of the corridor should contribute to reduced accident rates and a commensurate reduction in vehicle repair and medical costs.

Secondary Impacts - The potential secondary impacts associated with highway improvements are a bit broader in scope than the direct impacts discussed above. An evaluation of secondary impacts typically involve an assessment of the possible impacts to area businesses and employment levels, the effects on property values of land and buildings that adjoin the highway, changes in the local tax base resulting from these property impacts, and changes in land use patterns along a corridor resulting from the transportation improvements.

The effects of proposed highway improvements on adjoining businesses can be both positive and negative depending on a variety of factors. Some of these factors include: the type of business; its physical location in relationship to the highway corridor; how long the business has been operating; other competition within the market place; and the design of the proposed highway improvement with regard to access.

Another distinction that needs to be made with regard to potential business impacts is that they can be both long-term and short-term. The short-term impacts are those associated with the construction period of the proposed improvements. The key impact of concern is reduction in the volume of business caused by restricted access to business sites during the time required to construct the improvements. Restrictions include closed driveways or roads, temporarily reduced capacity or intermittent blockage of driveways, reduced number of parking spaces, and the confusion or uncertainty of customers about how to reach the business site during construction.<sup>7</sup> These impacts can have a severe effect on businesses and should be addressed through mitigation efforts. Such mitigation measures might include expediting the construction process, thorough planning for traffic management during construction, improved signage to guide customers to the businesses during construction and to guide bypassing traffic through the detours, and temporary access or parking facilities.

The long-term impacts of highway improvements on businesses are those that begin to materialize in the years after construction has been completed. Highway widenings are generally considered to have a positive overall effect on adjoining businesses since the widening results in increased accessibility due to increased capacity. This would be expected to be true along the Route 101 corridor in Bedford, although the proposed installation of a raised median at certain locations may result in some exceptions. Certain types of businesses are considered to be more traffic dependent in that they rely on pass-by traffic for a greater percentage of their sales. These types of establishments include businesses such as fast food restaurants, service stations, convenience stores, and lodging facilities. The Route 101 corridor has only a few of these types of establishments and only one, a service station on the <sup>west</sup>east-bound side, would have restricted access due to the raised median. For the most part, businesses along the Route 101 corridor are considered to be destinations, for local residents, and not heavily dependent on impulse type shopping trips.

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<sup>7</sup> *Assessing the Effects of Highway-Widening Improvements on Urban and Suburban Areas, Synthesis of Highway Practice 221*, Transportation Research Board, 1996.

Some research has concluded that the installation of raised medians foster a negative perception regarding the impacts on businesses which is often worse than the actual results. One study, based on a survey of area businesses, found that the amount of pass-by traffic did not change at all when compared with conditions before the median was constructed versus after the installation occurred.<sup>8</sup> That study also found that "gross sales" and "customers per day" did drop significantly for most types of businesses during the construction phase of the project. Most of the businesses surveyed reported however, that after project completion the number of customers and gross sales increased. Increases were reported for establishments such as durable and specialty retailers, fast food and sit down restaurants, and medical related businesses. Two types of establishments, gas stations and auto repair establishments, did report a decrease in customers and gross sales after construction completion, although the decrease in sales was less than two percent.

The proposed widening of Route 101 would most likely have a positive impact on the value of undeveloped land abutting the corridor due to improved accessibility, especially land which is presently zoned for commercial development. Information presented previously in this analysis illustrated that the Route 101 corridor has historically been a secondary location to the Route 3 corridor in terms of preferred retail sites in the Bedford market area. It is expected that the proposed widening would help to reduce this disparity, but would not cause a substantial shift in the land use development trends within a near-term period. In other words, as long as there is still development potential within the region's existing core commercial areas there is unlikely to be a shift away from those areas to the Route 101 corridor due solely to the proposed widening. However, regional population increases, combined with a dwindling supply of viable commercial land throughout the metropolitan area, could eventually place more development pressure on the corridor with regard to long-term commercial growth.

## VII. Summary Conclusions

This report has presented an analysis of economic and land use conditions related to the Route 101 corridor in Bedford. The analysis focused on the role of the corridor within the local and regional economy and the potential for future non-residential development along the highway corridor based on various market and economic assumptions. The findings of this analysis indicate that Route 101 is an important component of the town's local economy and tax base, but the Route 3 corridor is more dominant in terms of historical growth and total assessed value.

From a regional perspective, the growth of Bedford's economy has contributed significantly to expansion in the office and retail sectors of the greater Manchester metropolitan area. However, the Route 101 corridor has not played a major role in that regional growth over the last decade. A build-out analysis found that vacant land in the commercial zoning districts along the Route 101 corridor

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<sup>8</sup>*Raised Medians and Economic Impact on Adjacent Businesses*, Frawley and Eisele, Mid-Continent Transportation Symposium 2000 Proceedings, 1999.

have the potential to add another 813,000 square feet of non-residential building space. Given historical growth trends in this area it is likely construction of all this space would take at least 20 years.

Redevelopment of the entire corridor was also considered under the assumption that zoning restrictions were not a factor. Under this scenario, which allowed for redevelopment of previously developed residential properties, it was estimated that the corridor could support between two and three million square feet of additional non-residential development. Although this type of redevelopment scenario would take many years, it could potentially occur as a result of a variety of factors including changing market conditions, decisions of private landowners, actions taken by local land use boards, and increasing traffic volumes on the corridor.

Finally, this analysis considered the potential economic impacts to businesses along the corridor due to the conceptual transportation improvements currently being considered for the Route 101 corridor in Bedford. Overall, it is expected that these improvements would have a positive economic impact on businesses and adjoining properties since a widening of the roadway would increase access to these sites. Some businesses, however, are more traffic dependent and could experience a negative impact due to the installation of a raised median, as being considered between Route 114 and Wallace Road. However, research on these types of improvements suggests that the negative impacts tend to be relatively modest and not long-term in nature.

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## Appendix C

**Bedford Zoning - A Regulatory Diagnostic and Future Options, prepared  
by Community Planning Solutions**

ROUTE 101 CORRIDOR STUDY

***BEDFORD ZONING:  
A REGULATORY DIAGNOSTIC AND FUTURE OPTIONS***

Prepared by:



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April 20, 2002

***Bedford Zoning:  
A Regulatory Diagnostic and Future Options***

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## ***Part One: Introduction***

### **Introduction**

There is ample evidence around us that zoning requirements strongly influence both the form and pattern of development, but also the nature and distribution of trip generation and levels of service along roadways. Prior to any assessment and recommendation of alternative zoning strategies, it is important to review and analyze what the existing rules allow.

This report presents an analysis of the relevant zoning regulations applicable to the Town of Bedford, New Hampshire. It includes a summary of use and density regulations within the zoning districts that abut Route 101. The objective of this report is to identify options to revise these regulations to meet the Town's goals for the 101 Corridor.

### **Opportunities to Enhance and Improve Existing Regulations**

Based upon the consulting team's analysis, options for regulatory change include:

- Further refinement and exclusion of automotive-oriented uses from the commercial zones along the corridor;
- Establishment of maximum size thresholds for commercial development along the corridor;
- Establishment of maximum setback requirements to discourage domination of parking areas in front yards of commercial development;
- Establishment and utilization of design guidelines for the Corridor to reinforce a neighborhood and village commercial vocabulary; and
- Long-term consideration of a Bedford Village Overlay District to help foster the Town's desired character for the Corridor.

## ***Part Two: Zoning Districts Along 101***

### **Existing Zoning Districts Along the 101 Study Corridor**

The following zoning districts abut the study corridor:

- Residential and Agricultural (RA) – *This district bounds a substantial portion of the frontage areas on both sides of the Corridor. The zone is characterized by single family residential use, with most properties not taking direct access from 101.*
- Commercial (CO) – *This district also bounds a substantial portion of the frontage areas on both sides of the Corridor. The zone is characterized by small retail uses and professional offices.*
- Highway Commercial (HC) – *This district is only minimally represented on the corridor, with one small, rectangular area on the southbound side, and a smaller parcel on the northbound side, within the Historic District.*
- Office (OF) – *The district abuts the 101/114 intersection, is between Pilgrim Drive and Wendover Way, and is traversed by the New England Power Company Easement. Professional office development and related uses characterize the district.*
- Historic District (HD) – *This overlay district traverses the north and southbound sides of the corridor, between the PSNH Easement to the west, and Bedford Center Road to the east. Historic buildings, including residential and civic structures, characterize this district.*

Not along the corridor, but of important relevance to it, is:

- The U.S Route 3 Corridor Performance Zone (PZ) – *This district, added to the Zoning Ordinance in 1993, bounds both sides of Route 3, and begins at the Merrimack Town Line, extending northerly above the Bedford Interchange of the F.E. Everett Turnpike.*

### **Use and Density Regulations in the Residential and Agricultural (RA) District**

*Summary of Permitted Uses:*

Residential: Single dwelling residences and manufactured housing units are permitted by right. Cluster Residential Development (CRD) is allowed provided such development complies with Article 45-6 of the Zoning Ordinance. Home occupation use must comply with Section 45-4-2(f)(1) of the Ordinance. One (1) accessory attached apartment is permitted to single-family residences, by special exception from the Zoning Board of Adjustment, and additional stipulations.

Commercial: No commercial use permitted.

Industrial: No industrial use permitted.

Public / Institutional: Churches and other places of worship, educational institutions, and public parks and playgrounds are permitted by right. Hospitals, sanatoriums, and nursing homes are permitted provided the lots have a minimum area of five (5) acres and comply with the buffer zone requirements of the Zoning Ordinance (Section 45-4-2(f)(2)). Day care facilities are allowed, providing the use complies with the Ordinance's home occupation regulations and that there is no less than fifty (50) square feet of play area for each child, and that activities associated with such use are properly screened or fenced from adjoining properties.

Agricultural: Gardens, nurseries, greenhouses, and general farming are permitted by right. Poultry raising is permitted. Livestock raising, with the exception of commercial hog raising, is permitted.

Accessory Use: Customary accessory uses are permitted. Helicopter operation as a residential accessory use is permitted with stipulations.

Telecommunications: Wireless telecommunications facilities are permitted subject to the standards found in Section 45-4-16 of the Zoning Ordinance, and all other applicable zoning and site plan requirements.

*Applicable Dimensional Regulations*

Minimum lot size: 1.5 acres

Minimum frontage: 150 feet

Minimum front yard setback: 35 feet

Minimum rear yard setback: 25 feet

Minimum side yard setback abutting a lot: 25 feet

Minimum side yard setback abutting a street: 35 feet

Maximum building height: 35 feet

Maximum building coverage (%): NA

Special conditions: None

**Use and Density Regulations in the Commercial (CO) District**

*Summary of Permitted Uses:*

Residential: Elderly housing is permitted subject to the Zoning Ordinance provisions for its definition, dimensional regulations, density, parking, special conditions, and site plan.

Commercial: Banks or financial institutions, business offices, professional offices, medical or dental clinics, personal service establishments, and restaurants are permitted. Retail sales establishments as defined in the Zoning Ordinance are permitted (*excludes* the sale of automobiles, trucks, motorcycles, boats, snowmobiles, trailers, mobile homes, camping vehicles, and similar types of vehicles). Business center developments, hotels, and motels are permitted provided that the lots they are on have a minimum area of two (2) acres and a minimum frontage of two hundred fifty (250) feet. General service and repair establishments are permitted, *excluding* shops for the repair of automobiles, trucks,

motorcycles, boats, snowmobiles, trailers, mobile homes, camping vehicles, and similar types of vehicles. Funeral homes, parking lots/garages and commercial recreation facilities are permitted by special exception. Membership clubs are also permitted by special exception, *excluding* those for gunning, trap shooting, trapping or other similar purposes.

Industrial: No industrial use permitted.

Public / Institutional: Public parks and playgrounds and education institutions are permitted by right. Day care facilities are allowed, providing that there is no less than fifty (50) square feet of play area for each child, and that activities associated with such use are properly screened or fenced from adjoining properties. Community centers are permitted by special exception. Nursing homes, and hospitals and sanatoriums by special exception, are permitted provided that the lot they are on has a minimum of five (5) acres and a minimum frontage of four hundred (400) feet.

Agricultural: No agricultural use.

Accessory Use: Customary accessory uses are permitted.

Telecommunications: Wireless telecommunications facilities are permitted subject to the standards found in Section 45-4-16 of the Zoning Ordinance, and all other applicable zoning and site plan requirements.

*Applicable Dimensional Regulations*

Minimum lot size: 1.5 acres

Minimum frontage: 175 feet

Minimum front yard setback: 60 feet

Minimum rear yard setback: 30 feet

Minimum side yard setback abutting a lot: 30 feet

Minimum side yard setback abutting a street: 60 feet

Maximum building height: 48 feet

Maximum building coverage (%): 25%

Special conditions: A Business Center Development must have a minimum lot size of 2 acres and minimum frontage of 250 feet. A buffer zone shall be provided in accordance with Section 45-4-2(f)(2) of the Zoning Ordinance.

**Use and Density Regulations in the Highway Commercial (HC) District**

*Summary of Permitted Uses:*

Residential: No residential use permitted.

Commercial: Personal service establishments, general service and repair establishments, restaurants, fast food restaurants, tourist information centers, parking lot/garages, commercial recreation facilities, hotels, motels, and automobile and vehicle repair facilities are permitted. Retail sales establishments are permitted *limited* to the selling of general merchandise appliances or of automobiles, automobile supplies, trucks,

motorcycles, boats, snowmobiles, trailers, manufactured housing, camping vehicles, and similar types of vehicles. Gasoline service stations, with or without accessory service bays for repairs, and including a convenience food store are permitted, but shall not include body or fender repair, painting, or used car sales or storage. Additionally, a gasoline station is not allowed within two (2) miles of another station within a HC zone.

Industrial: No industrial use permitted.

Public / Institutional: Public parks and playgrounds are permitted. Day care facilities are allowed, providing that there is no less than fifty (50) square feet of play area for each child, and that activities associated with such use are properly screened or fenced from adjoining properties.

Agricultural: No agricultural use.

Accessory Use: Customary accessory uses are permitted.

Telecommunications: Wireless telecommunications facilities are permitted subject to the standards found in Section 45-4-16 of the Zoning Ordinance, and all other applicable zoning and site plan requirements.

*Applicable Dimensional Regulations*

Minimum lot size: 1 acre

Minimum frontage: 150 feet

Minimum front yard setback: 60 feet

Minimum rear yard setback: 30 feet

Minimum side yard setback abutting a lot: 30 feet

Minimum side yard setback abutting a street: 60 feet

Maximum building height: 48 feet

Maximum building coverage (%): 25%

Special conditions: A buffer zone shall be provided in accordance with Section 45-4-2(f)(2) of the Zoning Ordinance.

**Use and Density Regulations in the Office (OF) District**

*Summary of Permitted Uses:*

Residential: Elderly housing is permitted subject to the Zoning Ordinance provisions for its definition, dimensional regulations, density, parking, special conditions, and site plan.

Commercial: Banks or financial institutions, business offices, professional offices, and medical or dental clinics are permitted. Retail sales establishments are permitted only as an accessory use to, and located within a building that contains a use that is permitted by right within this zoning district.

Industrial: No industrial use permitted.

Public / Institutional: Public parks and playgrounds are permitted. Day care facilities are allowed, providing that there is no less than fifty (50) square feet of play area for each child, and that activities associated with such use are properly screened or fenced from adjoining properties.

Agricultural: No agricultural use.

Accessory Use: Customary accessory uses are permitted.

Telecommunications: Wireless telecommunications facilities are permitted subject to the standards found in Section 45-4-16 of the Zoning Ordinance, and all other applicable zoning and site plan requirements.

*Applicable Dimensional Regulations*

Minimum lot size: 1 acre

Minimum frontage: 150 feet

Minimum front yard setback: 60 feet

Minimum rear yard setback: 30 feet

Minimum side yard setback abutting a lot: 30 feet

Minimum side yard setback abutting a street: 60 feet

Maximum building height: 48 feet

Maximum building coverage (%): 25%

Special conditions: A buffer zone shall be provided in accordance with Section 45-4-2(f)(2) of the Zoning Ordinance.

**Use and Density Regulations in the Historic District**

As noted previously, this District is superimposed on the existing Residential and Commercial Districts around Bedford Center. Design guidelines and review procedures are imposed on alteration and construction of buildings, to promote and enhance the qualities of the district, but they do not facially establish different use and density regulations from the underlying districts.

**Use and Density Regulations in the U.S. Route 3 Corridor Performance Zoning (PZ) District**

*Summary of Permitted Uses:*

Residential: Elderly housing is permitted subject to the Zoning Ordinance provisions for its definition, dimensional regulations, density, parking, special conditions, and site plan. Home occupations defined as Level 1 in the Zoning Ordinance are permitted.

Commercial: The following uses are permitted: banks or financial institutions; retail sales establishments; business offices; professional offices; medical or dental clinics; professional service establishments; general service and repair establishments; business center developments; restaurants, fast food restaurants; tourist information centers; funeral homes; commercial recreation facilities; membership clubs; hotels; motels; automobile and vehicle repair; wholesaling; rental and service of tools and equipment;

and sale of building materials. Gasoline service stations, with or without accessory service bays for repairs, and including a convenience food store, but *not* including body or fender repair, painting, or used car sales or storage are permitted only by a Conditional Use Permit granted by the Planning Board. Adult entertainment businesses are permitted subject to the standards found in Section 45-9-16 of the Zoning Ordinance and all other applicable zoning and site plan requirements.

Industrial: The following uses are permitted: manufacturing; light manufacturing; warehousing; wholesale and rental trades; research and development facilities; and information processing. Truck terminals are permitted, provided that the site is enclosed on all sides by a fence or wall at least six (6) feet in height and its parking area is paved and protected by barriers or wheel stops. The site must be limited to one (1) entrance and one (1) exit no wider than thirty (30) feet each. Excavation operations are permitted in the PZ zone only if they are located in the portion of the town bounded by the Merrimack River, the town of Merrimack town line, the F.E. Everett Turnpike, and Route 101/I-293.

Public / Institutional: The following uses are permitted: churches or other places of worship; educational institutions; hospitals and sanatoriums; nursing homes; public parks and playgrounds; cemeteries; golf courses/country clubs; community centers; government facilities; and public/private recreation and open space are permitted. Day care facilities are allowed, providing that there is no less than fifty (50) square feet of play area for each child, and that activities associated with such use are properly screened or fenced from adjoining properties.

Agricultural: Gardens, nurseries, and greenhouses and general farming are permitted.

Accessory Use: Warehousing facilities, business offices, commercial service facilities, and water dependent structures and customary accessory uses are permitted.

Telecommunications: Wireless telecommunications facilities are permitted subject to the standards found in Section 45-4-16 of the Zoning Ordinance, and all other applicable zoning and site plan requirements.

*Applicable Performance Dimensional Regulations*

*(Varies based upon utility and shared access provision. See Section 45-9-7 and Figure 45.5, "Table of Performance Dimensional Standards" of Zoning Ordinance.)*

## ***Part Three: Analysis, Findings, and Recommendations***

### **Analysis and Findings: RA**

Infill residential development in this District will contribute to the traffic demands on the Corridor. Few large parcels seem available for major subdivision activity along the Corridor, making changes to the use and dimensional requirements of this District generally unnecessary.

### **Analysis and Findings: CO**

#### *Use Regulations:*

The CO District permits a wide array of commercial uses, including most retail and office uses. Given the Town's goals for its town center area, and its desire to control the growth of trip generation on the Corridor, narrowing the range of permissible land uses may be an appropriate action.

Fast food restaurants, automotive uses, and large-scale retail establishments should continue to be discouraged. Establishing retail and office thresholds based on ultimate size should also be considered. Potentially scrutinizing and removing selected uses, or subjecting them to special exception review may also be warranted.

#### *Density Regulations:*

The dimensional regulations applicable to this District foster low-density commercial development situated on large lots with abundant lot frontage and setbacks. The Town's desires for aesthetic treatment within these setback areas could be strengthened beyond the reference to and specifications for the "Buffer Zone" requirements.

### **Recommendations Applicable to CO Districts on 101:**

In the Town's Table of Uses, "Retail Sales" permitted in the CO District is subject to a footnote #5 that lists a range of retail uses that are permissible as well as those that are excluded. While sales of automobiles, trucks, and other vehicles are excluded, automotive accessory items are not. It is recommended that such use be excluded from the CO Districts that have frontage along 101, because such uses are presently retail within "box style" store units, and are not consistent with the character desired for the Corridor. This recommendation could be addressed through a small text amendment to footnote #5, referenced above.

A further recommendation to be considered relates to the ultimate size of retail and office development, and a maximum size threshold for retail stores within multi-tenant buildings. These proposed requirements would help ensure that large box retail developments, more appropriate to regional shopping environments and highways, are not likely to locate on 101, so that the Corridor maintains a more "local" orientation. The Town should consider establishing maximum size (based on gross floor area) as shown in the table that follows:

	<u>Present Requirement</u>	<u>Proposed Requirement</u>
Maximum Building Size:	None	20,000 sq. ft./ up to 25,000 maximum potentially allowable with a “design review” bonus from Planning Board, for exemplary project design.
Maximum Size of Retail Store in Multi-tenant Building:	None	15,000 sq. ft.

The setback requirement applicable to this district also needs to be customized for Route 101. Currently, a 60-foot front yard setback is required, pushing back structures on a lot and subordinating building form to the dominance of parking areas. A minimum setback and maximum setback should be established from the streetline or front lot line. A 25-foot minimum and a 40-foot maximum should be considered for the Town Center area. For the area west of Wallace Road, a larger minimum and maximum setback could be established (and in no case should a setback exceed 80-100 feet).

### **Analysis and Findings: HC**

While two small zones only minimally represent this District on the Corridor, it does allow a greater array of land uses and is more permissive than many of the other zoning districts within the Town. Encouraging redevelopment of land within these zones to be more compatible with abutting residential and commercial land uses is important. Fostering a New England design and development vocabulary should be pursued, through either specific amendments to this District or revisions to the Town’s site plan regulations. A combination of both requirements and incentives may be needed to achieve more favorable development outcomes on a long-term basis.

### **Recommendations Applicable to HC Districts on 101:**

The recommendations related to the CO Districts, previously described, are also relevant to the HC Districts, although because of the size of the HC districts and their distance from the Town Center, there may be less urgency in terms of implementation.

It may be useful to tailor the use regulations away from automotive uses, similar to the recommendation for the CO District, by limiting retail uses to general merchandise, excluding sale of automobiles, vehicles, and automotive accessories and parts. This could be accomplished through a text amendment to footnote #8 In the Town’s Table of Uses. The setback and maximum development thresholds recommended for the CO District may also be appropriate to apply to the HC district.

### **Analysis and Findings: OF**

The Town has a professional office park along the Constitution Drive area. Since this land is mostly developed, there may not be a need to fashion zoning amendments related to use and density requirements at this time.

### **Analysis and Findings: Historic District**

Proposed development outside the Historic District should strive to use the characteristics of Bedford's historic buildings as the inspiration for the built form of any new development. This objective should be emphasized in any new zoning procedures or district guidelines for the 101 Corridor.

### **Analysis and Findings: PZ**

#### *Application of U.S. Route 3 Corridor Performance Zoning District Concepts to the 101 Corridor*

This District is one of the most comprehensive special zoning districts in the New England region. The District enables a wide array of uses to be permitted and establishes great flexibility in relation to development standards. An array of performance standards specifically designed to improve the aesthetic and functional aspects of development is included. It includes a table of performance dimensional standards that allows minimum lot area, minimum lot frontage, front yard setback requirements, and maximum impervious coverage to be varied, if special performance criteria is met.

Greater dimensional flexibility and incentives are granted for achievement of a variety of amenities and accomplishments, including the following:

- Shared access;
- Providing interconnected parking lots;
- Providing needed easement areas on lots; and
- Connection to municipal water and sewer.

There are extensive requirements for landscape performance standards and provisions that, among other things, provide incentives to save mature healthy trees. Detailed figures are provided in the regulation that reflect how to maximize bonus and incentive provisions, as well as meet applicable standards.

Flexible parking standards are included in the performance zone, as well as standards for signage and lighting. Environmental performance standards related to sound, wetland protection, and development of slope and shoreland protection areas are also included.

It is the opinion of the consulting team that some of the standards incentives and requirements of the Performance Zone could well be adapted for application to the nonresidential zones along Route 101. ***What is not applicable to 101 Corridor is the extensive list of permissible uses in the PZ Zone, particularly the large array of***

*commercial and industrial uses, as well as accessory uses such as warehouse facilities, or the building height and maximum impervious surface allowances.*

However, the following standards may have application to 101:

- **Front yard setback reduction:** As an incentive to subordinate parking in relation to building form; and
- **Dimensional flexibility:** For landscaping standards and options in shared access and interconnected parking lots.

Other zoning incentives that follow the types of principles found in the Performance Zone could be considered along 101 to accomplish Master Plan objectives. These could include provision of pedestrian and bike access and pathways linking important parts of the Town, providing better management of traffic and initiatives on and off-site to provide gathering places and open space opportunities, and linkages to or provision of civic space.

Many of the transportation actions described in the Strategic Master Plan Update 2000 related to Transportation and Infrastructure, including safe and functional crossings for local roads, traffic safety improvements, streetscape and landscape improvements, all merit exploration for establishing new standards and incentives to be included in the Zoning Ordinance for use in selected areas along the 101 Corridor.

Development that improves the aesthetic qualities of the Town also could be awarded with specialized incentives. Some of the concepts and ideas that are contained within the Performance Zone could be applied to commercial areas along 101. This could be done as an overlay provision, to be superimposed beyond existing zoning requirements, where property owners and developers could aspire to achieve a variety of goals, and be awarded greater dimensional flexibility than what would otherwise exist in the underlying Commercial and Office zones.

In fashioning any new zoning requirements or an overlay district for the Corridor, greater simplicity than the structure and content of the PZ Zone should be pursued, particularly since the overall size of existing commercial zones on 101 are less extensive, and more limited development is anticipated. It is also important to note that the “design guidelines” approach delineated in Option #2 in Part Four of this report, is the recommended initial zoning strategy for the Corridor.

### **Off-Street Parking Requirements**

The Town has both general and specific provisions for parking that are applicable to all zoning districts, as well as special design requirements and standards for the Route 3 Corridor Performance Zoning district.

It appears that the Town has the correct parking space ratio requirements for the predominant land uses that are anticipated along the 101 Corridor. However, while there are important landscaping, lighting, and geometric standards for parking lot design applicable to all commercial and office zoning districts, specialized standards and guidelines for the Corridor are important, and have been recommended and proposed for use by the consulting team.

### **Regulations for Signage**

The Zoning Ordinance provides signage regulations for each zoning district in the Town. Residential zoning districts have the most restrictive regulations in terms of the allowable surface area of signs. The Commercial district allows free-standing signs not to exceed 32 sq. ft and an additional sign painted or attached to one wall of the building, not to exceed 10% of the sq. footage of the wall on which it is displayed and not to exceed 32 sq. ft.

For shopping centers or professional parks, one lot sign identifying the center of the center or park can be constructed not to exceed 50 sq. ft, and signs are allowed for each individual tenant, not to exceed 10% of the wall upon which it is displayed, and not to exceed 32 sq. ft. Wall signs or free standing signs located 150 ft or more from any street right-of-way may increase the sign area by utilizing a special formula.

There are similar sign regulations in the Office District. “Advertising media” shall not total over 32 sq. ft, and wall or free standing signs are regulated in the same manner as provided in the Commercial District. In the Highway Commercial District, one projecting ground or pole sign, and one flat sign to a (business) unit are allowed for each business, not to exceed 32 sq. ft in surface area. Any wall or free standing sign is subject to the same privileges provided in the Commercial and Office districts previously described.

The most comprehensive signage regulations are provided in the Route 3 Performance Zoning District. In this District, detailed sign standards are provided, including standards for landscaping around signs, sign placement, lettering, surface area, height, and number.

The consulting team recommends that this kind of comprehensive signage approach to regulating sign construction and placement be considered, but that the design guidelines prepared by for Route 101 by the Wallace Floyd Design Group be pursued as an initial approach to this challenge.

## ***Part Four: Regulatory Options***

It is clear from review of recent Town planning documents, including the Strategic Master Plan Update 2000, that the Town wishes to promote a decidedly different character for land uses along 101, as opposed to land uses along the Route 3 Corridor. It seems clear that land uses desired for 101 are those that will help promote or be compatible with the Town's village characteristics. Large-scale regional shopping centers and generic commercial uses are to be discouraged.

In order to accomplish these strategic objectives, and the Town's future vision for the Corridor, new zoning tools and guidelines will need to be fashioned. In the short term, the Town should consider establishing a lower amount of permissible gross floor area for commercial and office development along the Corridor, as discussed in the preceding section.

The Town could subject any retail or office development in either the Commercial or Office District along the Corridor to a design review process. This process should make use of the Commercial Architectural and Signage Guidelines (hereinafter referred to as "design guidelines") prepared by the Wallace Floyd Design Group. These guidelines will help foster the following:

- Establish a sense of entry to 101 in Bedford
- Encourage traditional building form
- Subordinate parking in relation to buildings
- Improve standards of signage and overall aesthetics
- Encourage high quality landscaping and pedestrian amenities
- Provide on-site lighting in traditional and pedestrian scale
- Enhance and protect the Town Center.

### **Design Review and Design Guidelines: An Initial Approach**

There are two basic approaches that merit Town consideration to help guide the physical evolution of 101.

#### ***Option #1: Insert proposed design guidelines into the Zoning Ordinance, through an amendment to the Bylaw.***

The advantage of this approach is that the actual guidelines will be viewed as mandatory, and similar to other zoning requirements such as minimum lot size, frontage, and other controls, even if the guidelines are not excessively prescriptive. The disadvantage of this approach is that it will make the guidelines seem less flexible, and also more difficult to change as new design ideas are proposed for the regulated areas.

A second option should be considered, that we believe would be viewed as flexible, easier to evolve, and more user-friendly:

***Option #2: Add text to the Zoning Ordinance that describes the Design Guidelines to be used for 101, including for the Town Center, and briefly detail the “Design Review Process” that would augment the current “Site Plan Regulations” procedure in the Town’s Land Development Control regulations.***

The approach assumes that both the Ordinance and development regulations would reference a “Design Manual” composed of the “Design Guidelines,” providing illustrations and examples.

The approach outlined above was recently adopted for the Route 1 East Corridor in Guilford, Connecticut, to address the Town’s concerns about sprawl and growth pressure in the region, and to help ensure that future growth along the corridor was developed with “place-based” considerations and respect for the Town’s built environment. Initial evidence suggests the above approach is working.

Another Design Manual and Design Guidelines approach was used in the North Cambridge neighborhood along Massachusetts Avenue, in Cambridge, MA. While design guidelines and illustrations are set forth separately from the City’s Zoning Ordinance, the City did down zone the area to reduce building height, in order to preserve the small-scale store fronts that abut Massachusetts Avenue in this district.

For the area of 101 that is part of the Town Center, more specifically focused guidelines have been proposed. The design guidelines approach, coupled with a few strategic text amendments in the Zoning Ordinance, is likely the right way to initially proceed. We also believe this approach could address a number of concerns, including:

- Ensuring quality design while avoiding the complexity of the framework used in the Route 3 Performance Zone; and
- Reflecting methods to enhance parking lot and site design that will not be viewed as excessively prescriptive.

### **Long Range Consideration of a Special Overlay District for the Town Center Area and Beyond**

Because the Town has special objectives for guiding development along 101, and an array of strategic objectives for future growth and development along this roadway, it may be wise for the Town, on a long-range basis, to consider a special Overlay District to guide growth in this area. An Overlay District superimposes standards and occasionally incentives beyond what normally governs the underlying zoning districts. The Town’s Historic District, for example, functions as an Overlay District.

Overlay District zoning is frequently used when special or innovative zoning objectives are envisioned for an area. There is more frequent use of Overlay Districts in recent years by communities that want to achieve such objectives as storm water management, aquifer re-charge, and design quality.

Such a District could help property owners and the Town work together to further define and develop an image for the Corridor that is compatible with the Town's desired community character. Rather than containing prescriptive standards, although in some cases, such standards may be required, the Overlay District could establish design considerations related to built form, landscape quality, and access management. Such a district would contain a balance of design, landscape and engineering standards and objectives, as well as special incentives, to provide dimensional flexibility beyond what is rigidly established in the Town's table of dimensional standards that currently apply to the commercial districts that bound the Corridor.

While some of the standards in the Route 3 Performance Zoning District may be worthy of exporting to other contexts, including aspects of this new Overlay District—such as shared access and utility incentives, and landscape requirements—it is important that the definition of any new district be more straightforward and concise than the elaborate standards and incentives of the Performance Zone. This is important because the land area available for future commercial growth along 101 is significantly smaller than the land area of the Route 3 Corridor Performance Zone and that roadway's regional commercial context.

Finally, the Town may wish to call a new Overlay District for 101 the “Bedford Village District” since the vocabulary desired for this area is decidedly less intensive, more human scale, and more village oriented. The Town could consider applying the Overlay around the Town Center area alone, or apply it more comprehensively, to the area west of Wallace Road as well.

### **Revisions to the Non-Residential Site Plan Review Regulations**

The Town of Bedford Planning Board is empowered to implement and adopt site plan review regulations for the review of non residential development. Since regulations may be periodically amended by the Planning Board following a public hearing, it would be useful for the Planning Board to consider amending the site plan regulations in particular sections to be more compatible with any new standards adopted related to the 101 Corridor project. At a minimum, text could be added to the existing site plan regulations to encourage shared access from existing curb openings, and opportunities to share parking. Further, adding language related to access management should be included as a basic “objective of the regulations” that are applicable to Route 101. The access management objectives could easily be added to the Purpose section of the regulations in Article 1.

Upon the adoption by the Town of any new standards or regulations that evolve from the Route 101 Plan, cross-referencing language should be added, to help applicants proposing site plans to navigate to other relevant sections of the Zoning Ordinance.

### **Should Rezoning Land along the Corridor be Considered?**

Until design guidelines and maximum building size thresholds are established for the commercial districts along 101, the Town should resist and discourage requests to upzone land along 101. After guidelines and thresholds are established, the Town could consider adjusting commercial district boundaries, but only with the following considerations:

- The boundary change, based on build-out and traffic analysis, would not degrade levels of service;
- The change would offer access management advantages, e.g., curb-cut consolidation; and
- The change would have other aesthetic and design advantages.

It may be useful for the Town to consider allowing neo-traditional housing, perhaps in townhouses or in units placed above retail stores or offices to foster a more traditional “main street” environment in sections along 101. Presently, most forms of housing are prohibited within the CO and HC Districts. This exclusion deserves to be examined, particularly since alternatives to strip and sprawl-type development is desired for the Corridor.